

# MTBE CONTAMINATION IN GROUNDWATER: IDENTIFYING AND ADDRESSING THE PROBLEM

---

## HEARING BEFORE THE SUBCOMMITTEE ON ENVIRONMENT AND HAZARDOUS MATERIALS OF THE COMMITTEE ON ENERGY AND COMMERCE HOUSE OF REPRESENTATIVES ONE HUNDRED SEVENTH CONGRESS SECOND SESSION

---

MAY 21, 2002

---

**Serial No. 107-108**

---

Printed for the use of the Committee on Energy and Commerce



Available via the World Wide Web: <http://www.access.gpo.gov/congress/house>

---

U.S. GOVERNMENT PRINTING OFFICE

80-670CC

WASHINGTON : 2001

---

For sale by the Superintendent of Documents, U.S. Government Printing Office  
Internet: [bookstore.gpo.gov](http://bookstore.gpo.gov) Phone: toll free (866) 512-1800; DC area (202) 512-1800  
Fax: (202) 512-2250 Mail: Stop SSOP, Washington, DC 20402-0001

## COMMITTEE ON ENERGY AND COMMERCE

W.J. "BILLY" TAUZIN, Louisiana, *Chairman*

MICHAEL BILIRAKIS, Florida	JOHN D. DINGELL, Michigan
JOE BARTON, Texas	HENRY A. WAXMAN, California
FRED UPTON, Michigan	EDWARD J. MARKEY, Massachusetts
CLIFF STEARNS, Florida	RALPH M. HALL, Texas
PAUL E. GILLMOR, Ohio	RICK BOUCHER, Virginia
JAMES C. GREENWOOD, Pennsylvania	EDOLPHUS TOWNS, New York
CHRISTOPHER COX, California	FRANK PALLONE, Jr., New Jersey
NATHAN DEAL, Georgia	SHERROD BROWN, Ohio
RICHARD BURR, North Carolina	BART GORDON, Tennessee
ED WHITFIELD, Kentucky	PETER DEUTSCH, Florida
GREG GANSKE, Iowa	BOBBY L. RUSH, Illinois
CHARLIE NORWOOD, Georgia	ANNA G. ESHOO, California
BARBARA CUBIN, Wyoming	BART STUPAK, Michigan
JOHN SHIMKUS, Illinois	ELIOT L. ENGEL, New York
HEATHER WILSON, New Mexico	TOM SAWYER, Ohio
JOHN B. SHADEGG, Arizona	ALBERT R. WYNN, Maryland
CHARLES "CHIP" PICKERING, Mississippi	GENE GREEN, Texas
VITO FOSSELLA, New York	KAREN MCCARTHY, Missouri
ROY BLUNT, Missouri	TED STRICKLAND, Ohio
TOM DAVIS, Virginia	DIANA DEGETTE, Colorado
ED BRYANT, Tennessee	THOMAS M. BARRETT, Wisconsin
ROBERT L. EHRLICH, Jr., Maryland	BILL LUTHER, Minnesota
STEVE BUYER, Indiana	LOIS CAPPS, California
GEORGE RADANOVICH, California	MICHAEL F. DOYLE, Pennsylvania
CHARLES F. BASS, New Hampshire	CHRISTOPHER JOHN, Louisiana
JOSEPH R. PITTS, Pennsylvania	JANE HARMAN, California
MARY BONO, California	
GREG WALDEN, Oregon	
LEE TERRY, Nebraska	
ERNIE FLETCHER, Kentucky	

DAVID V. MARVENTANO, *Staff Director*  
JAMES D. BARNETTE, *General Counsel*  
REID P.F. STUNTZ, *Minority Staff Director and Chief Counsel*

---

## SUBCOMMITTEE ON ENVIRONMENT AND HAZARDOUS MATERIALS

PAUL E. GILLMOR, Ohio, *Chairman*

JAMES C. GREENWOOD, Pennsylvania	FRANK PALLONE, Jr., New Jersey
GREG GANSKE, Iowa	EDOLPHUS TOWNS, New York
JOHN SHIMKUS, Illinois	SHERROD BROWN, Ohio
HEATHER WILSON, New Mexico	GENE GREEN, Texas
VITO FOSSELLA, New York	KAREN MCCARTHY, Missouri
( <i>Vice Chairman</i> )	THOMAS M. BARRETT, Wisconsin
ROBERT L. EHRLICH, Jr., Maryland	BILL LUTHER, Minnesota
STEVE BUYER, Indiana	LOIS CAPPS, California
GEORGE RADANOVICH, California	MICHAEL F. DOYLE, Pennsylvania
CHARLES F. BASS, New Hampshire	JANE HARMAN, California
JOSEPH R. PITTS, Pennsylvania	HENRY A. WAXMAN, California
MARY BONO, California	PETER DEUTSCH, Florida
GREG WALDEN, Oregon	JOHN D. DINGELL, Michigan,
LEE TERRY, Nebraska	( <i>Ex Officio</i> )
ERNIE FLETCHER, Kentucky	
W.J. "BILLY" TAUZIN, Louisiana	
( <i>Ex Officio</i> )	

(II)

# CONTENTS

---

Testimony of:	Page
Ellis, Patricia, Hydrologist, Delaware Underground Storage Tank .....	46
Grumbles, Hon. Benjamin H., Deputy Assistant Administrator, Office of Water, U.S. Environmental Protection Agency .....	13
Jones, James R., President, Board of Directors, South Tahoe Public Util- ity District .....	56
Miller, Timothy L., Chief of National Water Quality Assessment Program, U.S. Geological Survey .....	16
Perkins, Craig, Director of Environmental and Public Works Manage- ment, City of Santa Monica .....	60
Stephenson, John B., Director of Environmental Issues, U.S. General Accounting Office .....	21
Williams, Pamela R.D., Exponent .....	53

(III)



## **MTBE CONTAMINATION IN GROUNDWATER: IDENTIFYING AND ADDRESSING THE PROBLEM**

---

**TUESDAY, MAY 21, 2002**

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON ENERGY AND COMMERCE,  
SUBCOMMITTEE ON ENVIRONMENT  
AND HAZARDOUS MATERIALS,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 3:40 p.m., in room 2123, Rayburn House Office Building, Hon. Paul E. Gillmor (chairman) presiding.

Members present: Representatives Gillmor, Ganske, Shimkus, Ehrlich, Radanovich, Terry, Pallone, Brown, Green, McCarthy, Luther, Capps, Harman, and Waxman.

Staff present: Jerry Couri, policy coordinator; Amit Sachdev, majority counsel; Hollyn Kidd, legislative clerk; Michael Goo, minority counsel; Dick Frandsen, minority counsel; and Courtney Johnson, minority research assistant.

Mr. GILLMOR. The subcommittee will now come to order.

The Chair recognizes himself for the purpose of delivering an opening statement.

Today's hearing has been called to look into the scope and the impact that MTBE has had on groundwater throughout our country. As Congress prepares to look at proposals to remediate MTBE in groundwater through significant use of the Leaking Underground Storage Tank Trust Fund, I think it is reasonable that our committee explore exactly what kind of situation we are trying to remedy.

Close observers of our committee know that debates over this fuel additive are not without their passions and agendas, but we are not interested in rehashing the debates of the past but rather in dealing with the realities of the present and the future. For this reason, our hearing is designed to not talk about the statutory provisions of the Clean Air Act reformulated fuel program or any pending or potential MTBE litigation or efforts to phaseout, ban or mandate the use of a specific fuel additive. Not only are some of those questions outside the jurisdiction of the subcommittee, some of those matters are best left to other branches of government. I believe that Congressman Greenwood's excellent hearing last November gave an appropriate forum for many of those issues to be aired.

So let me be as clear as I can about what our committee does seek to accomplish.

First, we want to know exactly how many parts of our country are facing MTBE contamination in the groundwater and drinking water.

Second, we want to know how severe this contamination is and how rapidly we must respond to avoid potential health risks.

Third, we want to know what is causing MTBE to get into groundwater and drinking water.

Fourth, we want to know how active the current local, State and Federal efforts are to protect groundwater and drinking water.

Last, it is incumbent upon our committee to see what further efforts need to be undertaken to ensure the safety of the environment against MTBE contamination.

I want to welcome our experts who have come to testify today. I want to thank them for the sacrifices that they have made here to be with us.

Our first panel combines the wide-ranging work of the U.S. Geological Survey on MTBE and groundwater with the most recent work of the General Accounting Office on leaking tanks and their relationship to MTBE and groundwater contamination. In addition, the view of the U.S. EPA's Office of Water will hopefully tie all of those findings together.

Our second panel brings us a wealth of insight as well. We will be hearing from the National Groundwater Association, which is comprised of several drinking water professionals that deal with MTBE on a daily basis. We will also hear the experiences from two members of local governments in California that have two of the larger MTBE contaminated sites.

Finally, we will have the opportunity to get a Ph.D.'s perspective on the science on MTBE.

Getting to the bottom of this issue is essential, not as part of the larger oxygenated fuels debate but rather because we must understand if there is another environmental threat for us to address. Regardless of which fuel Americans put in their gas tanks, if a dangerous MTBE continues to lurk in our groundwater and nothing is done, then we will be facing massive cleanup responsibilities and serious drinking water delivery issues. If our hearing today bears out that we must take further action, I am prepared to take that step and will move our committee toward a legislative solution. I hope that we will have the bipartisan cooperation of members of this committee when this time comes.

I now yield 5 minutes to my colleague and the ranking member of this subcommittee, the gentleman from New Jersey, Mr. Pallone, for the purpose of an opening statement.

Mr. PALLONE. Mr. Chairman, I want to start out by saying that I always want to have a hearing on an important environmental issue like MTBE.

I would hope that the subcommittee would move quickly to move a bipartisan bill that would authorize more spending on leaking underground storage tanks, which is the primary source of MTBE contamination. I know that Mrs. Capps had language in the energy bill and that the Senate has addressed this in the energy bill. I am not sure whether that conference would move to include something

like this, but I think it is incumbent upon us as the subcommittee to try to move legislation on this important issue as soon as possible after the hearing.

I also want to say, on a side issue, that I would urge the subcommittee to move on an interstate waste bill as soon as possible, hopefully immediately after the Memorial Day recess. I know a number of Members on our side of the aisle, as well as the other side of the aisle, would like to see action on that legislation as soon as possible.

Mr. Chairman, concern over water contamination caused by the gasoline additive methyl tertiary-butyl ether, or MTBE, has raised question concerning the desirability of using the additive as a means of producing cleaner-burning fuel. MTBE is used by most refiners to produce the reformulated gasoline required under the Clean Air Act in portions of 17 States and the District of Columbia. It is credited with producing marked reduction in carbon monoxide emissions. RFGs have also reduced emissions of toxic substances and the volatile organic compounds that react with other pollutants to form smog.

Over the last few years, however, incidence of drinking water contamination from MTBE have raised serious concerns, particularly in California by Mr. Waxman, and have led to calls for restrictions on its use. In March 1999, Governor Davis of California ordered a phaseout of MTBE use in the State by December 31, 2003. Twelve other States, including New Jersey, have subsequently enacted limits or phaseouts of the substance.

We all remember that EPA responded to initial reports of water contamination by intensifying research and focusing on the need to minimize leaks from underground fuel tanks. As reports of contamination spread in 1998 and 1999, however, EPA's position evolved. On March 20, 2000, the Agency announced it was beginning the process of requiring a reduction or phaseout of MTBE use under the Toxic Substances Control Act. Because regulatory action could take years to complete, EPA urged Congress to amend the Clean Air Act to provide specific authority to reduce or eliminate use of the substance.

Since then, the Senate Environment and Public Works Committee has twice reported a bill to provide such authority, and the Senate incorporated similar provisions in its version of H.R. 4, the energy bill which only recently passed.

I recognize if MTBE were removed from gasoline without amending the Clean Air Act there would be a need for refiners to use alternative sources of oxygen in RFG. The potential alternatives are other forms of ether or alcohol such as ethanol. Of course, we know that substitutes do exist. For that reason I think Congress should act immediately to phaseout the use of MTBE. However, we should also provide for the opportunity to use alternative fuels that will meet strict air quality standards.

Mr. Chairman, the other action that Congress needs to be addressing is the No. 1 source of MTBE contamination in our drinking water, petroleum releases from leaking underground storage tanks, LUST. With nearly \$2 billion in the trust fund to clean up these LUST sites across the country and hundreds of thousands of sources of contamination identified, I am at a loss to understand

why the administration actually cut funding and in its budget only dedicated \$73 million to clean up these leaking tanks.

Cleanup needs to happen now. As we will hear from the witnesses, MTBE contamination poses a real problem, one that should not be overlooked by this administration. We must do better; and, hopefully, working together on a bipartisan basis, we can move quickly to accomplish the goal and address this matter.

I thank you for having the hearing today.

Mr. GILLMOR. Thank you, Mr. Pallone.

Mr. Ganske.

Mr. GANSKE. Thank you, Mr. Chairman.

A year or 2 ago I brought a vial—and it is vile stuff—of MTBE here to the hearing; and I just unscrewed the cap and left it unscrewed for just a very short period of time, maybe 30 seconds, and it totally filled the room with such obnoxious odor I think most people wanted to leave. I then screwed it on tightly, and somehow or other it ended up back in my apartment. Even though it was a glass vial with a very thick plastic cap, it evaporated through the plastic eventually.

This is a substance that I think we need to worry about. Iowa is not one of the States where it is in the gasoline, but 2 years ago Iowa's Department of Natural Resources issued a report that showed that 32 percent of groundwater samples had MTBE levels of at least 15 micrograms per liter. What is worse is that 29 percent of the groundwater samples had MTBE concentrations above the level at which the EPA issues a drinking water advisory. Think about that. No MTBE sold or used in Iowa today, yet 29 percent of groundwater samples in Iowa qualify for Federal drinking water advisories due to contamination of this product.

We are going to hear testimony today about MTBE. Some of the worst contamination occurs in States like New Jersey and California, but it is a problem that we are seeing everywhere. How does it get into Iowa's water? Possibly from previous years, but also possibly from exhaust pipes, trucks, cars coming across Iowa or maybe from two-cylinder engines.

Some have looked at fixing this. British Petroleum, California's largest gasoline marketer, is replacing MTBE with ethanol before Governor Gray Davis's deadline. Since Governor Davis set a date of banning MTBE, the ethanol producers have come online with 1 billion gallons of production capacity for the new market. I think we should move to replace this substance with something that is environmentally more friendly; and in the future, as we consider how best to solve the problem of MTBE contamination in groundwater, I hope we will keep renewable ethanol in mind.

I would also like to say that another common sense measure we ought to think about is opening up the Leaking Underground Storage Tank Trust Fund in order to help fund the States' cleanup of underground storage tanks. I am sure that many of them contain MTBE.

Mr. Chairman, I think it is important to have this hearing. The safety of our water supply is very, very important to our citizens. When you have a chemical that is so pervasive and so emissible as MTBE is, then the public I think is demanding that we do something about it.



Mr. Chairman, I yield back the balance of my time.

Mr. GILLMOR. The gentleman from Ohio, Mr. Brown.

Mr. BROWN. Mr. Chairman, since 1999 California and a dozen other U.S. States have placed restrictions on the sale of MTBE. Regardless of your views on that chemical, it is clear that the intent of these laws in each of these States is to protect public health and the environment.

The problem is that Chapter 11 of the North American Free Trade Agreement allows private corporations from Mexico and Canada to challenge laws like these on the basis that they are barriers to free trade and that they constitute an expropriation of the company's property. To make matters worse, lawsuits brought under Chapter 11 of NAFTA are decided behind closed doors by tribunals comprised almost primarily of trade lawyers with little public health and environmental and medical expertise. These unelected tribunals are empowered by the North American Free Trade Agreement to repeal a sovereign nation's public health and environmental laws without accepting even petitions or testimony from third parties.

The investor-state relationship cast by Chapter 11 exemplifies the greatest imaginable abuse of our democratic principles by allowing private corporations to sue a foreign sovereign government and overturn domestic health and safety laws passed by regulation or by votes of legislative democratically elected bodies.

Corporations have been quick to capitalize on Chapter 11. In response to California's decision to phaseout the use of MTBE, a decision made democratically in a State in the United States, the Methenex Corporation of Canada, a for-profit corporation, sued the State of California for \$970 million, something which could not have been done under any trade agreement ever agreed to in this country—\$970 million.

While Congress and the stakeholders in the MTBE debate have not reached a consensus on how to deal with the problem, we should be free to resolve this issue through domestic, democratic means. The Bush administration, unfortunately, does not share this view. Fast track legislation supported by the White House does not include any provision that would prevent a similar Chapter 11 from being included in future trade agreements, and the Senate process holds little hope for such a provision.

U.S. Trade Representative Bob Zoellick is committed to a similar Chapter 11, again allowing a corporation to sue and try to overturn a democratically obtained law or regulation in another country, has committed to a similar Chapter 11 in future agreements.

If Chapter 11 is included or a Chapter 11 look-alike is included in future agreements like a free trade act to the Americas, this committee might as well close its doors, because any new law that would be passed to protect the environment, to preserve public health, is ultimately subject to review by private corporations in any other country in this hemisphere. We must not allow international trade laws to undermine this committee's work, this Congress's work, the work of the American people to draft environmental and public health laws in our own States and in our own country.

I yield to Mr. Waxman.

Mr. WAXMAN. I thank the gentleman from yielding to me. I have to go to another hearing.

I thank the chairman for holding this hearing and for accommodating my request to hear testimony from the city of the Santa Monica. I believe all members of the subcommittee will benefit from learning of the disastrous impact MTBE has had on Santa Monica's water supply. We must be mindful that as long as MTBE is in the fuel supply what happened to Santa Monica can happen elsewhere.

I am pleased that the city of Santa Monica was able to send Mr. Craig Perkins to testify today. Mr. Perkins is Director of the Environmental Public Works Management for the City, and he has worked tirelessly to address Santa Monica's MTBE contamination since 1996.

Like Santa Monica, many communities throughout the country have had their drinking water contaminated by leaking underground storage tanks. It is time for Congress to take action to prevent additional communities from being poisoned by MTBE.

I thank the gentleman from Ohio for yielding to me so I can get my 2 cents in on his 5-minute period.

Mr. BROWN. Mr. Chairman, I yield back the balance of my time.

Mr. GILLMOR. Mr. Ehrlich.

Mr. EHRLICH. Mr. Chairman, this is the latest in a series of hearings in this committee on MTBE contamination of groundwater. In my opinion, it is time to move legislation on this issue. To that extent I adopt the comments of my friend from California, Mr. Waxman.

I am aware that many of my colleagues do not agree on issues such as banning MTBE or mandating the use of ethanol, but there is one thing on which we all agree, the need to reform the Federal LUST program to ensure that all tanks comply with and are operating in accordance with current regulations designed to prevent petroleum releases and to get more money out of the LUST fund to the States so that these leaking tanks can be cleaned up. The LUST trust fund will have a balance of just under \$2 billion at the end of this fiscal year. The administration has requested appropriations of only \$73 million in fiscal year 2003, less than the amount the fund will earn in interest next year.

Last year, the GAO released a report containing numerous recommendations to Congress to reform the Federal LUST program. Reform legislation has been introduced in the Senate and is moving in committee. Moreover, this committee has twice moved bipartisan legislation targeted toward improving the program. In fact, in the 105th Congress, the House passed the last bill, H.R. 668, on the suspension calendar on a voice vote. Clearly, there is precedent in this area and a history of bipartisan cooperation. This committee's oversight subcommittee held a hearing last year on this issue with respect to MTBE contamination, and there was virtually universal agreement that we could move a storage tank bill forward.

In light of these factors, I strongly urge the chairman and ranking member of the subcommittee to introduce and move tank reform legislation in the near future. I will support their efforts, and I am sure many of my colleagues will as well.

Mr. Chairman, I yield back the balance of my time.

Mr. GILLMOR. Mrs. Capps.

Mrs. CAPPS. Mr. Chairman, thank you for holding this hearing. I am very pleased that the subcommittee is turning its attention to the problem of MTBE contamination and the leaking underground storage tanks that are causing drinking water supplies across the country to become contaminated. It is about the most basic service the government does, to ensure clean and safe drinking water.

As we know, MTBE is a fuel additive designed to reduce the production of smog by increasing the burning efficiency of gasoline. But because of its unique properties which Mr. Ganske described, MTBE often escapes underground storage tanks and contaminates groundwater, making the water smell and taste like turpentine at even very low levels, and has resulted in closing important drinking water supplies all across the country.

There are two issues I want to raise today. First, MTBE contamination in groundwater supplies from leaking underground tanks is prevalent and a problem. In my central coast district of California, there are 42 known MTBE-contaminated sites in San Luis County and 111 in Santa Barbara County.

For example, the coastal town of Cambria is facing a real calamity. MTBE contamination has shut down two municipal drinking water wells the community service district has used as backup sources during dry seasons and droughts. The district has spent more than \$1 million to research the problem. Cambria is also considering the addition of a desalination plant to ensure an adequate supply of drinking water, and that will cost millions more.

However, Mr. Chairman, the threats posed by MTBE are not confined to my congressional district. Our colleague from Santa Monica described what it is like there. Nationwide, more than 419,000 leaks from underground storage tanks have been detected; and the EPA projects that many more can be confirmed as older tanks are upgraded, replaced or closed to meet current regulations. Currently, over 160,000 of these sites need to be addressed.

South Tahoe Public Utility District—and the second panel has a representative from that district—has shut down 13 of its 34 drinking wells due to MTBE contamination. Twenty-one of Wisconsin's 71 counties have detected MTBE in groundwater, and in Iowa it has been detected in over 23 percent of urban alluvial wells. So it is time that we do something about this.

We need to assist the communities directly affected by MTBE contamination. Our committee, the House and the Senate, has already started the process of addressing this issue. In the energy package, the committee included my amendment to authorize \$200 million to clean up MTBE contaminated sites, but this was only a small step toward addressing these cleanup needs when we should be taking a giant leap forward.

In 1986, Congress established the Leaking Underground Storage Tank, or LUST, Trust Fund to tackle this nationwide problem. It was specifically created to ensure prompt and appropriate cleanup from leaking underground storage tanks at gas stations and other facilities. It is financed by one-tenth of a cent gallon gasoline tax on motor fuel, but because we have appropriated less each year for cleanup than is collected in taxes annually, this trust fund will

have an estimated balance of \$2.14 billion at the end of fiscal year 2003.

This year, the trust fund will collect an estimated \$193 million, yet the President's budget requests only \$73.2 million to undertake cleanup activities. This is \$68,700 less than last year's appropriation. I think we need to do better than that. The American people are paying taxes on gasoline and other fuels precisely to ensure that these underground tanks are not polluting their drinking water, and we should use the funds for that purpose. This is something that this Congress needs to move forward on.

MTBE-contaminated sites will continue to pop up around the country unless we immediately fix this contamination problem. If not, we are gambling on the purity of our drinking water. That is a risk I am not willing to take.

I look forward to exploring the issue. I thank the witnesses for appearing today, and I thank you for holding this hearing, Mr. Chairman.

Mr. GILLMOR. The gentlewoman from Missouri.

Ms. MCCARTHY. Mr. Chairman, I am going to put formal remarks in the record so we can get on to the witnesses, and I thank the witnesses for being here, and I thank you for this hearing.

I would like to associate myself with the statements of Mr. Ehrlich. Having been in the Missouri legislature and having been the author and sponsor of the Missouri LUST program in my service there, I am concerned that we in Congress are not adequately funding the program. There is no money in the Missouri fund, and there will be no money in the future.

While we do try to inspect our tanks once every 3 years and we have had a pretty good program in place in the past, I think it is time to revisit the LUST fund legislation, that we make a commitment to fund it adequately, reform it and improve upon it as needed.

Fortunately, my State has not had a problem with MTBE except in a few instances. But for the sake of all States who want to protect their groundwater, we really need to address this issue.

I thank you, and I will put formal remarks in the record.

Mr. GILLMOR. I would like to ask unanimous consent that all members may have 5 days to submit opening statements and 10 days to file relevant information on the topic of the hearing. Hearing no objection, it is so ordered.

The gentleman from Texas.

Mr. GREEN. Mr. Chairman, I appreciate you calling this meeting because much of the debate centered around whether to ban MTBE is the impact on our drinking water supplies. I have read the testimony of most of our witnesses and am encouraged to see MTBE groundwater detections are declining.

Addressing leaky underground storage tanks and keeping the two-stroke motors off our lakes used for drinking water has contributed to cleaner water. However, more needs to be done on the regulatory level to address the underground storage tank issue. The States and the EPA need to crack down on tank owners not in compliance with Federal underground storage tank regulations. 1998 was supposed to be the year that all tanks were to be double-lined and inspected for leaks, but, unfortunately, many of these

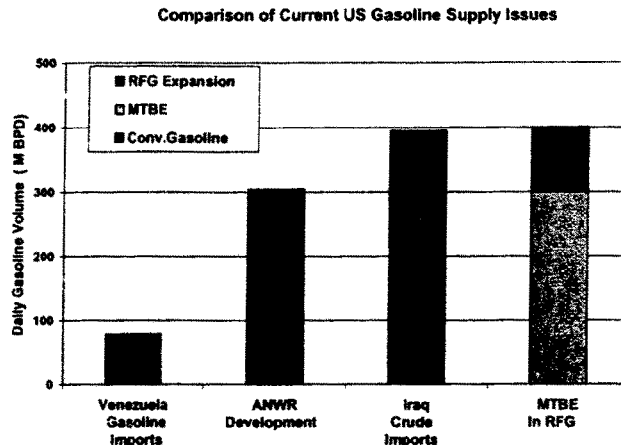
tanks still do not meet the Federal standards. I strongly urge all communities to stop allowing uninspected tanks to be refilled until they are brought in compliance.

In addition, for tanks located in close proximity to critical drinking water sources, more extensive leak-proofing may be needed.

We must look at all alternatives before banning MTBE because of the significant economic impact on American consumers and further help our enemies in the Middle East and even Iraq. The price of gasoline will dramatically increase as new supplies of oil must be imported to make up for the loss of MTBE. We import now 5 percent of our oil needs from Iraq, and we will lose 5 percent of daily gasoline needs if MTBE is banned. Banning MTBE means we may have to purchase more Iraqi oil to meet our needs.

Mr. Chairman, I have a chart that I would like to put into the record reflecting this fact.

[The chart referred to follows:]



Mr. GREEN. In addition to the national security issues, whole areas of this country will experience the ethanol effect. States like California will see gas prices increase from 50 to 100 percent because they must use ethanol. Ethanol cannot be transported through pipelines so the only way to move it around the country is by tanker trucks, rail or barge. When you add all of the additional transportation costs to the basic cost of the gasoline, aside from price implications, our nonattainment regions of this country will see a reduction of air quality because of the clean air benefits of MTBE cannot be equaled by ethanol.

Mr. Chairman, I support emptying the Leaking Underground Storage Tank Trust Fund down to the last nickel if it means we can bring all the underground storage tanks into compliance. Banning MTBE will only fix a symptom of a much larger problem. Where there is MTBE there is a host of other chemicals that States need to be testing for and forcing remediations where necessary. I have used this statement many times: Anything that makes my truck run, I don't want to taste or smell. Just because I can taste or smell MTBE, there are lots of other chemicals in our gasoline

that may be in there that we may not be testing for. MTBE is an easy marker that, once removed, should not be taken as a sign that the underground contamination problem is fixed.

I look forward to discussing this issue in great depth with today's witnesses.

Mr. Chairman, I yield back the balance of my time.

Mr. GILLMOR. The gentleman from Illinois is recognized, but first I would like to congratulate him on the passage of his Dot Kids bill on the floor today. It was very well done.

Mr. SHIMKUS. Mr. Chairman, I thank you; and I appreciate those kind words. It was a great victory, and we have a great opportunity to at least have another tool in the attempt to protect our kids. We are excited. We also are excited that we have Senator Ensign and Senator Dorgan ready to move it forward on the Senate side.

I have a few comments to make, but I am going to disregard those. I understand that we have a panel of experts. I don't want to get into a fist fight with my friend from Texas, who is doing his best to ensure that his issue is up front; and, with all due respect, he knows that we have some disagreements and we are aligned on the side when we need to be on the same side. We will not make this bloody for his purposes, which is to say we look forward to listening and hearing from our panel of experts.

Mr. GREEN. If the gentleman will yield for a brief response.

Mr. SHIMKUS. I am honored to.

Mr. GREEN. We will save our physical competitiveness for the basketball court.

Mr. SHIMKUS. Mr. Chairman, I yield back the balance of my time.

Mr. GILLMOR. The gentlewoman from California, Mrs. Harman.

Ms. HARMAN. Mr. Chairman, I have a statement for the record.

Mr. Chairman, I am the one sitting next to Mr. Green, and I have promised not to be violent either. But I would point out just a few facts about California. Mrs. Capps and Mr. Waxman have also addressed these facts.

First of all, I am sorry that we postponed the MTBE ban for a couple of years. I guess it is 1 year. I am for implementing that ban as soon as possible.

Second of all, my understanding is that we do in California the most extensive MTBE monitoring of drinking water that is done anywhere in the country. As of May 2002, which is this month, this is very current data, we have 2,996 systems serving 31.4 million of the State's 34 million people. Over 56 systems, that is 1.9 percent, reported detections of MTBE in their drinking water sources. Thirteen had concentrations exceeding California's MTBE drinking water standards. That may not sound like a lot, but over the millions of people served that is a lot of people, and that is a lot of potential health problems.

I would just say to Mr. Green on his point about being dependent on Iraqi oil, I don't think that we should be dependent on Middle Eastern oil at all. I think we should ban harmful additives from our gasoline, and we should move expeditiously to energy independence. The way I would get there is to use all forms of alternative energy, not fossil fuels, many of which are developed and produced in my State and his State; and I think that is a recipe

for a more secure country, a cleaner environment, and a healthier population.

Mr. Chairman, I yield back the balance of my time.  
[The prepared statement of Hon. Jane Harman follows:]

PREPARED STATEMENT OF HON. JANE HARMAN, A REPRESENTATIVE IN CONGRESS  
FROM THE STATE OF CALIFORNIA

My thanks to Chairman Gillmor for convening this hearing on MTBE contamination of ground water.

As a representative from a state with considerable experience with MTBE in gasoline, I can also attest to the severe groundwater contamination found in several areas of the state—including Los Angeles County and the city of Santa Monica, which is adjacent to my Congressional District.

Today's hearing will hopefully focus needed attention on local, state and federal efforts to remove MTBE from ground water and, in particular, on the need to increase expenditures from the LUST leaking tank trust fund.

Like my colleague from Santa Barbara (Mrs. Capps), I believe the expenditures from the LUST Trust Fund are inadequate to address the extent of MTBE contamination, aid states in their inspections, or improve enforcement actions against tank owners.

Last year, in testimony before our sister subcommittee, the General Accounting Office said that despite installation of required protective equipment, more than 200,000 underground tanks were not operated and maintained properly—thus contributing to the chance of leaks.

Most of the operating and maintenance problems were attributed to poorly trained staff and the lack of regular state inspections. In its testimony, GAO said only 19 states physically inspect all of their tanks at least once every three years and 22 states only target inspections on potentially problematic tanks.

In addition to more frequent inspections, a number of states reported to the GAO that they need additional enforcement tools to correct problems tanks. One of the most effective tools is the ability to prohibit suppliers from delivering fuel to stations with tank problems. Twenty-seven states said they did not have the authority to take this simple preventative step.

These are a few of the issues that can be addressed by improving the LUST fund legislation and increasing the allocation of federal funding for these activities.

I hope this hearing presages our efforts to consider such legislation.

Mr. Chairman, between the information we will receive today and that already obtained by the Investigations Subcommittee in its hearing last November, we have a full appreciation of the extent of MTBE ground water contamination and the steps necessary to stop it at its source.

I encourage you to take the next step and bring to the Subcommittee a legislative proposal to address this need.

I look forward to working with you toward that end.

Thank you.

Mr. GILLMOR. The gentlewoman yields back.

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF HON. GEORGE RADANOVICH, A REPRESENTATIVE IN  
CONGRESS FROM THE STATE OF CALIFORNIA

Mr. Chairman, I commend you for taking the time to evaluate and focus on the extent of MTBE contamination in our nation's water supply.

As more studies on MTBE contamination are being completed across the nation, the extent of the problem is becoming fairly well known. MTBE contamination has affected communities across the country. I have personally witnessed the terrible effects of MTBE in my home state of California where communities have faced the loss of a significant portion of their drinking water supplies due to MTBE contamination caused by failures of underground storage tank systems.

With the threat of adverse health effects, it is imperative that EPA works aggressively to conduct and support studies to better quantify the risk from ingesting water containing MTBE. Once MTBE enters the environment, it is difficult to respond to the fast moving contaminant, therefore now is the time to utilize the LUST trust fund to its maximum capability. It is crucial that we immediately implement improved methods to protect our water supply systems, and I look forward to hearing what type of guidance EPA will provide for states on the assessment and remediation of MTBE contaminated sites.

In the end, I hope we can work together to protect the drinking water that our citizens depend on each and every day and build on our Committees' recent progress and result in continued improvements in one of our Nation's most critical and precious resources.

Thank you, Mr. Chairman, for holding this hearing today. I look forward to the witnesses' testimony.

---

PREPARED STATEMENT OF HON. W.J. "BILLY" TAUZIN, CHAIRMAN, COMMITTEE ON COMMERCE

Thank you, Chairman Gillmor. I want to commend you for your efforts in putting together today's hearing on the scope of concerns related to Methyl Tertiary Butyl Ether (MTBE) cleanup efforts.

The Clean Air Act Amendments of 1990 created reformulated gasoline requirements that resulted in widespread use of MTBE as a gasoline additive designed to reduce air pollution caused by mobile sources, such as cars, trucks, and boats. But since its implementation, we have also heard in hearings before this Committee that MTBE may pose some significant threats to groundwater sources when it leaks from underground tanks.

Today's hearing is important, because I believe it is another opportunity for us to listen to Federal and State officials involved in cleanup efforts and to hear from scientific experts about the nature and scope of concerns regarding MTBE contamination. We need to determine how to proceed in crafting public policy regarding MTBE contamination that utilizes the best available scientific information and makes the most effective use of available Federal and State resources.

As my colleagues know, both the House and Senate-passed energy bills provide additional authorization to use Federal resources, including funds collected in the Leaking Underground Storage Tank (LUST) Trust Fund, for MTBE cleanups. The House-passed bill authorizes \$200 million to be taken from the LUST Trust Fund for the cleanup MTBE releases from leaking underground storage tanks. The Senate-passed bill also authorizes \$200 million to be appropriated from the LUST Trust Fund to be used for release prevention and compliance and to clean up MTBE releases from underground storage tanks and otherwise. In the coming weeks we will be working to reconcile the House and Senate energy bills and these provisions.

I look forward to the testimony of the witnesses today to assist us in designing appropriate public policy in addressing releases of MTBE.

Thank you, Mr. Chairman.

---

PREPARED STATEMENT OF HON. ED TOWNS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. Chairman, thank you for holding this important hearing. As you know, my state, New York, is one of fourteen states that has already taken steps to limit or ban MTBEs. The problem with MTBE's is not limited to these fourteen states. I welcome this hearing as an opportunity to learn how widespread the MTBE groundwater contamination problem is, but I come to this hearing skeptical that we know the answer to that question.

I believe that the federal government must take preventative steps to ban MTBE's, assist states with their remediation efforts in a far more meaningful way, and offer those states that are required to use reformulated gas under the 1990 clean air act amendments of 1990 with a waiver until an appropriate alternative can be provided. Today, I hope to hear what steps can be taken on a federal level to eliminate this potentially devastating organic chemical as well as what can be done to assist states, such as New York, that do not have the infrastructure in place to replace MTBEs with ethanol.

Mr. GILLMOR. We will proceed to our panel.

Our first witness is the Honorable Ben Grumbles, Deputy Assistant Administrator for the Office of Water, U.S. Environmental Protection Agency.



**STATEMENTS OF HON. BENJAMIN H. GRUMBLES, DEPUTY ASSISTANT ADMINISTRATOR, OFFICE OF WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY; TIMOTHY L. MILLER, CHIEF OF NATIONAL WATER QUALITY ASSESSMENT PROGRAM, U.S. GEOLOGICAL SURVEY; AND JOHN B. STEPHENSON, DIRECTOR OF ENVIRONMENTAL ISSUES, U.S. GENERAL ACCOUNTING OFFICE**

Mr. GRUMBLES. Thank you, Mr. Chairman.

I am Ben Grumbles, the Deputy Assistant Administrator for the Office of Water at the U.S. Environmental Protection Agency.

First, let me convey the Assistant Administrator Tracy Meehan's regrets for not being able to be here today to testify before the subcommittee.

Second, I appreciate the opportunity to share with you some of EPA's perspectives and actions regarding the extent of MTBE contamination of our Nation's valuable water resources. EPA continues to craft national policies and programs to improve air quality while also ensuring the provision of safe, reliable drinking water.

I know the value of your time, Mr. Chairman, so I will just summarize the basic message, which is MTBE presence in water supplies is widespread but at relatively low levels. We recognize that it may be more of an issue of taste and odor, but it is also a potential public health issue, so more aggressive research is needed and analysis is needed on that point.

EPA is working aggressively with its Federal, State and local partners to accelerate the level of pollution prevention and source water protection and watershed planning.

In the remaining minutes of the testimony, I would like to get into some of the specifics and the background.

In terms of the sources of MTBE contamination, as the members of the subcommittee have already pointed out, the Nation's fuel supply contains constituents, including MTBE, which may pose environmental and human health risks when not managed carefully. These gasoline components have the potential to be released to the environment wherever gasoline is stored, transported or transferred. The most significant sources of contamination of water resources are from leaking storage tanks, pipelines, refueling spills, and emissions from older marine engines. However, the presence of MTBE makes the challenge of cleaning up these releases more difficult because MTBE's chemical and physical properties make it much more likely to reach groundwater than other petroleum constituents. Even at low concentrations, MTBE may make the drinking water undrinkable due to its unpleasant taste and odor.

MTBE's impact on drinking water supplies. MTBE contamination from all sources, but primarily underground storage tanks, is fairly widespread. Approximately 419,000 petroleum releases from underground storage tanks have been reported since the beginning of EPA's LUST program in the mid-1980's. There are also hundreds of thousands of abandoned underground storage tanks, many of which have releases.

A national study by New England Interstate Water Pollution Control Commission in 2000 found that most States detect MTBE at 60 to 80 percent of Leaking Underground Storage Tank sites.

MTBE contamination has affected communities across the country, as members have mentioned this afternoon. Santa Monica, California, has faced the loss of a significant portion of its drinking water supplies due to MTBE contamination caused by failures of underground storage tank systems. Lake Tahoe has faced similar problems; and in Long Island, New York, MTBE contamination has resulted in alternate or improved drinking water supplies having to be provided for over 160 affected public and private wells.

To assess the extent of MTBE contamination at the national level, EPA is collecting data on MTBE in finished drinking water as part of its Unregulated Contaminant Monitoring Rule published in 1999. Preliminary data indicates that MTBE has been detected in only 1 of 154 large systems that have reported to date at a level of 13 parts per billion. Of the 283 small systems that have reported, 3 systems detected MTBE at levels ranging from 6 to 49 parts per billion. The complete set of EPA's unregulated contaminant monitoring occurrence data will be available in 2004.

The USGS has amassed a large data set for the period 1993 to 2000. Their data show that MTBE occurs more frequently in water supplies in regions with high MTBE use but that the vast majority of detections are very low levels.

In addition, results published in 2001 from a joint USGS/EPA study of 12 northeastern States from 1993 through 1998 showed that MTBE was detected in 7.8 percent of community drinking water supplies. Less than 1 percent of these detections were above the levels of 20 to 40 parts per billion cited in EPA's Drinking Water Advisory which the Agency had published in 1997 to help consumers avoid unacceptable taste and odor from low levels of MTBE in water supplies.

In terms of addressing the challenges, let me just say public health researchers have limited data about what the adverse health effects may be if a person ingests water contaminated with MTBE. EPA has been working aggressively to conduct or support studies to better quantify the risk from ingesting water containing MTBE.

In March 1998, EPA added MTBE to its Drinking Water Contaminant Candidate List for making risk-based decisions on contaminants the Agency will consider for future regulatory action. EPA is committed to making a decision at the earliest possible time as to whether or not a health-based regulation is appropriate.

Mr. Chairman, in closing, I would just like to say I appreciate the opportunity to testify before you today on this important subject. EPA is taking several actions to aid States and localities in addressing MTBE contamination. We have provided substantial funding and technical support, and we look forward to working with you and your colleagues to address this most significant and important issue.

I would be happy to answer any questions at the appropriate time.

[The prepared statement of Benjamin H. Grumbles follows:]

PREPARED STATEMENT OF BENJAMIN H. GRUMBLES, DEPUTY ASSISTANT  
ADMINISTRATOR FOR WATER, U.S. ENVIRONMENTAL PROTECTION AGENCY

Good morning Mr. Chairman, and Members of the Subcommittee. I am Ben Grumbles, Deputy Assistant Administrator for Water at the U.S. Environmental

Protection Agency (EPA). First, let me convey Tracy Mehan's regrets for being unable to be here today to speak with this Subcommittee. Second, I appreciate the opportunity to share with you EPA's perspectives and actions regarding the extent of Methyl Tertiary-Butyl Ether (MTBE) contamination of our nation's valuable water resources. EPA has been and continues to craft national policies and programs to improve air quality while also ensuring the provision of safe, reliable drinking water to all of our citizens.

#### SOURCES OF MTBE CONTAMINATION

The nation's fuel supply contains constituents, including MTBE, that may pose both human health and environmental risks when not managed carefully. MTBE, as well as other gasoline components, has the potential to be released to the environment wherever gasoline is stored, transported, or transferred. The most significant sources of contamination of water resources are from leaking underground and aboveground storage tanks, pipelines, refueling spills, emissions from older marine engines, and to a much lesser degree, storm runoff and precipitation. However, the presence of MTBE makes the challenge of cleaning up these releases more difficult, because MTBE's chemical and physical properties make it much more likely to reach ground water than other petroleum constituents. Even at low concentrations, MTBE may make the water undrinkable due to its unpleasant taste and odor.

#### MTBE'S IMPACT ON DRINKING WATER SUPPLIES

MTBE contamination from all sources, but primarily from underground storage tanks, is fairly widespread. Approximately 419,000 petroleum releases from underground storage tanks have been reported since the beginning of EPA's Underground Storage Tank program in the mid-1980's. There are also hundreds of thousands of abandoned underground storage tanks, many of which have releases that need to be addressed. In addition, there is emerging evidence that vapor releases from new and upgraded underground storage tanks are common, and these vapors containing MTBE can find their way into ground water.

A national study by the New England Interstate Water Pollution Control Commission in 2000 found that most states detect MTBE at 60 to 80 percent of leaking underground storage tank sites. Based on an analysis of data from 31 states, a report in *Environmental Science & Technology* (May 2000) estimated that up to 9,000 community water supplies in those 31 states may be threatened by MTBE contamination. However, the U. S. Geological Survey (USGS) and others have reviewed the data underlying this study, and more recent surveys, and have estimated that the number of threatened community water supplies is likely far lower.

MTBE contamination has affected communities across the country. For example, the City of Santa Monica, California has faced the loss of a significant portion of its drinking water supplies due to MTBE contamination caused by failures of underground storage tank systems. Lake Tahoe has faced similar problems. In Long Island, New York, MTBE contamination has resulted in alternate or improved water supplies having to be provided for over 160 affected public and private wells. Pascoag, Rhode Island, while smaller in size than Santa Monica, Lake Tahoe or Long Island, has also lost its drinking water supply. More recently, attention has turned to a release in Roselawn, Indiana.

To gauge the impacts of MTBE levels in our water supplies, let me give you some background on the Agency's Drinking Water Advisory for MTBE, published in 1997. The advisory provides information and guidance to people and agencies concerned with potential taste and odor impacts on consumers from the presence of low levels of MTBE in their drinking water. The advisory is not a legally enforceable standard. The 1997 advisory recommends not exceeding MTBE levels of 20-40 parts per billion (ppb) to avoid unacceptable taste and odor.

To assess the extent of MTBE contamination at the national level, EPA is collecting data on MTBE in finished drinking water as part of the Unregulated Contaminant Monitoring Rule, which was published in 1999, to cover new monitoring that began in 2001. This rule requires all large public water systems and a nationally representative subset of small systems to monitor for and report results of MTBE sampling. Preliminary data indicates that MTBE has been detected in only 1 of the 154 large systems that have reported to date, at a level of 13 ppb. Of the 283 small systems that have reported, 3 systems detected MTBE at levels ranging from 6-49 ppb. The complete set of EPA's unregulated contaminant monitoring occurrence data will be available in 2004.

The USGS has amassed a large data set for the period 1993-2000 through its National Ambient Water Quality Assessment. Their data show that, as you might expect, MTBE occurs more frequently in water supplies in regions with high MTBE

use, but that the vast majority of detections are very low levels, with a median concentration of 0.5 ppb. In addition, results published in 2001 from a joint USGS/EPA study of 12 northeastern states for the period 1993-1998 showed that MTBE was detected in 7.8 percent of community drinking water supplies, with less than 1 percent of these detections above the 20-40 ppb levels cited in EPA's Drinking Water Advisory. Again, this 12-state study also concluded that MTBE is detected five times more frequently in drinking water from public water systems in areas requiring reformulated gas or winter oxygenated fuel than in areas where non-reformulated gas or winter oxygenated fuel are not required.

Another concern is the potential risk to private household wells, which EPA does not have the statutory authority to regulate. In 1998, the State of Maine reported on sampling conducted on 951 household drinking water wells and 793 public water supplies. In this study, MTBE was detected in 16 percent of the sampled household wells, with 1 percent of these wells containing MTBE levels exceeding the EPA Drinking Water Advisory level. The public water systems also reported detection frequency of 16 percent, but none of the systems showed levels above the upper end of EPA's Drinking Water Advisory.

#### ADDRESSING THE CHALLENGES

Public health researchers have limited data about what the adverse health effects may be if a person ingests water contaminated with MTBE. EPA has been working aggressively to conduct or support studies to better quantify the risk from ingesting water containing MTBE.

In March 1998, EPA added MTBE to its Drinking Water Contaminant Candidate List, which is the Agency's targeting and prioritization tool to make risk-based decisions on contaminants the Agency will consider for future regulatory action. EPA is committed to making a decision at the earliest possible time as to whether or not a health-based regulation for MTBE is appropriate.

This decision, like others involving the protection of public health, should be based on sound scientific information. In the case of MTBE, we are currently conducting an assessment of the human health consequences due to ingestion of water containing low levels of MTBE. We plan to issue a final health assessment in spring 2003. This assessment, coupled with a much clearer picture of the levels and extent of MTBE contamination across the U.S. from data collected through EPA's unregulated contaminant monitoring program data and USGS's studies, will provide the solid scientific underpinning for making the right public health decision.

EPA is taking several actions to aid states and localities in addressing MTBE contamination. EPA has provided substantial funding and/or technical support to Santa Monica, South Lake Tahoe, Long Island, and Pascoag, Rhode Island to remediate MTBE. In addition, EPA is chairing a federal-state workgroup that will create interim guidance for states on the assessment and remediation of MTBE contaminated sites. EPA also maintains a comprehensive website covering the full depth and breadth of MTBE issues. EPA is also conducting a demonstration of treatment and remediation technologies for MTBE-contaminated soil, ground water and drinking water at Port Hueneme, California.

#### CLOSING THOUGHTS

Thank you, Mr. Chairman, for the opportunity to testify today before this Subcommittee on this important subject. EPA looks forward to working with you on this and other issues relevant to protecting the quality of one of our nation's most precious and critical resources. That concludes my prepared remarks, and I would be happy to answer any questions.

Mr. GILLMOR. Thank you very much, Mr. Grumbles.

We will go to Mr. Timothy Miller, Chief of the National Water Quality Assessment Program, U.S. Geological Survey.

#### STATEMENT OF TIMOTHY L. MILLER

Mr. MILLER. Thank you, Mr. Chairman. I appreciate the opportunity to appear before the subcommittee and testify on the findings of the U.S. Geological Survey.

I ask that my full statement be entered into the record, and I have a few brief comments.

The mission of the U.S. Geological Survey to assess quantity and quality of the Nation's resources and providing information that will assist policymakers at all levels in making sound decisions is one of the focuses of our efforts.

U.S. Geological Survey studies over the past 8 years have shown that MTBE typically is present at very low concentrations in shallow groundwater, and concentrations are almost always below the levels of concern for taste and odor. The locations in our data base with high concentrations of MTBE may be associated with leaking underground storage tanks typically.

The results presented today come from studying MTBE and other volatile organic compounds as part of the National Water Quality Assessment Program. Within that program we measure about 60 VOCs on a routine basis.

Since we first reported results in 1995 on a small number of sites, we have now sampled more than 40,000 wells for MTBE and a wide range of other compounds. About 10 percent of those 4,000 wells are public water supply wells. The remaining 3,600 are wells that are evenly split between domestic supply wells and monitoring wells which are not used for drinking water.

At a reporting level of two-tenths of a microgram per liter in that large data set, we detected MTBE in about 5 percent of the wells sampled. Most of the MTBE detections are low concentrations. None of the public water supply wells and only one of the domestic wells had MTBE at a concentration above 20 micrograms per liter, the lower limit of EPA's drinking water advisory.

The large data set shows that low levels of MTBE are detected in about one out of five wells in MTBE high-use areas. MTBE is the second most frequently detected volatile organic compound. Chloroform, a drinking water disinfection by-product and a commercial solvent, is the most frequently detected VOC.

We have also undertaken two additional large-scale studies, first in cooperation with USEPA. As Mr. Grumbles has reported, we did look at drinking water supply wells in 12 States in the Northeast and Mid-Atlantic from 1993 through 1998, and we found about 9 percent of those systems had detectable MTBE. Ten systems had MTBE concentrations that equaled or exceeded the lower limit of EPA's advisory on taste and odor.

We are now completing a second large study in selected reservoirs, rivers and wells that supply community water systems. We are working with the American Water Works Research Association and with the Metropolitan Water District of Southern California. In this 4-year study, we have tested about 950 randomly selected community water systems. Sixty percent of those systems are wells. The rest are rivers and reservoirs. The samples have come from all 50 States and Puerto Rico.

The initial findings are similar to what we have noted earlier. Specifically, MTBE concentrations were almost always below the drinking water advisory. About 9 percent of all sources sampled had MTBE present. In general, the detection of MTBE increased with the increasing size of community water systems. For example, MTBE was detected in about 4 percent of systems serving more than 10,000 and in nearly 15 percent of systems serving greater than 50,000.

Last year, USGS also coauthored an article that pointed out that, within 31 States, although the data are limited, about 9,000 community wells may have one or more leaking underground storage tanks within a radius of 1 kilometer of the well. Not all community wells with gasoline releases nearby are at risk for MTBE contamination because not all gasoline releases contain MTBE and not all MTBE releases are sufficiently large to pollute a nearby well. Also, many wells draw water from deeper zones of aquifers and may be isolated from land surface contamination by low permeability rocks.

In summary, the USGS has not found widespread, high-level MTBE contamination at rivers, reservoirs and groundwater that are actively used as community water systems. Furthermore, we have not found high concentrations in public wells and domestic wells sampled in our NAWQA program or in the drinking water of community water systems in the Northeast and Mid-Atlantic States. We have, however, identified MTBE and other VOCs frequently found in groundwater, source water and drinking water at concentrations below EPA's advisory.

I appreciate the opportunity to testify today, and I would be happy to respond to any questions. Thank you, Mr. Chairman.

[The prepared statement of Timothy L. Miller follows:]

PREPARED STATEMENT OF TIMOTHY L. MILLER, CHIEF, NATIONAL WATER-QUALITY ASSESSMENT PROGRAM, U.S. GEOLOGICAL SURVEY, U.S. DEPARTMENT OF THE INTERIOR

Mr. Chairman and subcommittee members, I appreciate the opportunity to appear before the Subcommittee on Environment and Hazardous Materials to testify on the findings of U.S. Geological Survey (USGS) studies on water-quality issues related to methyl tertiary-butyl ether, commonly referred to as MTBE.

As you may know, the mission of the USGS is to assess the quantity and the quality of the earth's resources and to provide information that will assist resource managers and policy makers at the Federal, State, and local levels in making sound decisions. Assessment of water-quality conditions and research on the fate and transport of pollutants in water are important parts of the overall mission of the USGS.

USGS studies over the past 8 years have shown that MTBE typically is present at very low concentrations in shallow ground water within areas where MTBE is used. Our studies also suggest that MTBE levels do not appear to be increasing over time and are almost always below levels of concern from aesthetic and public health standpoints. The few locations in our database with high concentrations of MTBE may be associated with leaking underground storage tanks.

Based on comparisons with the U.S. Environmental Protection Agency's (USEPA) drinking water advisory, the health threat to water supplies is small compared to other water-related issues. MTBE is primarily an aesthetic (taste and odor) problem. However, we believe it may be prudent to continue our monitoring and research within available resources so that we can verify that the threat remains low and to further the understanding of this chemical to contribute to effective strategies to protect our Nation's water supplies and to efficiently remediate those ground waters that have become contaminated.

The results I will present today come from about a decade of sampling and study of MTBE and other Volatile Organic Compounds (VOCs). MTBE is one of about 60 VOCs that we measure on a routine basis in our water-quality studies.

The single largest study we have made of MTBE is part of our National Water Quality Assessment (NAWQA) Program. Based on initial monitoring data for wells sampled in 1993-94 in the NAWQA Program, we published a report on the occurrence of MTBE in shallow ground water in urban and agricultural areas. At that time our data set was fairly small—about 200 randomly selected wells in urban areas and 500 randomly selected wells in agricultural areas. We reported finding MTBE in about 25 percent of urban wells and 1 percent of agricultural wells. Many of the MTBE detections were low concentrations. In fact, only 3 percent of the urban wells exceeded 20 micrograms per liter, the lower limit of USEPA's consumer advisory for taste and odor. Also, many of the urban wells that contained MTBE were

located in Denver, Colorado, and in New England, both areas with extensive use of MTBE prior to our sampling. At the time, MTBE was a chemical for which usage had increased dramatically in recent years and we knew it moved in the subsurface differently from other gasoline components. Thus, even though it was detected in few wells and at very low levels, we believed it would be prudent to continue studying it at many locations and over a period of several years to learn more about its national distribution and fate.

Since our first report in 1995, we have sampled additional wells in the NAWQA Program. This now gives us much better coverage of aquifers across the Nation. For the period 1993-2000, we sampled 4,260 wells (or springs) for MTBE and a wide range of other compounds. Of this total, 396 are public water-supply wells; 1,847 are domestic wells; and 2,017 are monitoring wells (or other wells not used for drinking water). At a reporting level of 0.2 micrograms per liter (a level that is one one-hundredth of the USEPA advisory level), we detected MTBE in 5.2 percent of the wells sampled. Most of the MTBE detections are low concentrations. None of the public water-supply wells and only one domestic well had MTBE at a concentration above the lower limit of USEPA's advisory. Through our interpretations of this large data set we have also determined that low-levels of MTBE are detected in about 1 out of 5 wells in MTBE high-use areas. Although we do not expect to see a great change in these results over time, we recognize that there may be a delay in the detection of MTBE in some wells—particularly those that are deeper and may be farther from the source of contamination. MTBE is the second most frequently detected volatile organic compound (VOC). Chloroform, a drinking-water disinfection by-product and a commercial solvent, is the most frequently detected VOC.

Based on our NAWQA findings and interests of other agencies, we have undertaken two allied, large-scale studies to further our understanding of the occurrence of MTBE and other VOCs. We have completed a study in cooperation with the USEPA's Office of Ground Water and Drinking Water. For the period 1993-98, we have compiled information on the occurrence of MTBE and other VOCs in drinking water supplied by Community Water Systems in 12 States in the Northeast and Mid-Atlantic Regions of the United States. Parts of these Regions are designated Reformulated Gasoline (RFG) Areas and, in general, these RFG Areas have used MTBE in gasoline in large amounts for many years. USGS obtained the MTBE/VOC data from each State's drinking-water program. We then randomly selected about 20 percent of the almost 11,000 Community Water Systems in the study area for our analysis. States with MTBE data included Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and Virginia. Data for MTBE were not available for Delaware and Pennsylvania, at the time the study was completed.

At a reporting level of one microgram per liter, about 9 percent of the Community Water Systems had detectable MTBE in their drinking water; however, most of the detections were low concentrations. Ten Community Water Systems had MTBE concentrations that equaled or exceeded the lower limit of the USEPA advisory, or about 1 percent of all Community Water Systems with MTBE data. We also confirmed that MTBE was detected more frequently in RFG Areas than elsewhere in the two Regions. Furthermore, larger Community Water Systems located in urban centers had a larger incidence of MTBE detections.

We are also working with the Metropolitan Water District of Southern California, and the Oregon Graduate Institute of Science and Technology, to complete a study of MTBE, other ether gasoline oxygenates, and other VOCs in select reservoirs, rivers, and wells that supply Community Water Systems. This study was partly funded through the American Water Works Association Research Foundation (AWWARF). We are in the final year of this 4-year project.

For this study, we tested the source water of 954 randomly selected Community Water Systems, including 579 wells, 171 rivers, and 204 reservoirs. Samples were collected in all 50 States and Puerto Rico, and varied sizes of systems were included. All sampling for this project is completed; however, some of our intended interpretations and report writing are not yet completed and peer reviewed. Initial findings, which were reported on June 20, 2001, at the Annual Conference of the American Water Works Association, were similar to our findings noted earlier in this statement. Specifically, when detected in source waters, the concentrations of MTBE were almost always below the USEPA advisory. However, MTBE was found in about 9 percent of all sources sampled (at a reporting level of 0.2 micrograms per liter), and it was the second most frequently detected VOC. A larger detection frequency of MTBE was found in surface-water sources (14 percent), than ground-water sources (5 percent). In general, the detection of MTBE increased with increasing size of the Community Water Systems. MTBE was detected in about 4 percent of Community Water Systems serving less than 10,000 people, and in nearly 15 per-

cent of systems serving greater than 50,000 people. Many of the surface-water sources sampled in the AWWARF study were large rivers and reservoirs that had recreational watercraft usage. Older models of watercraft motors are known to release a fraction of non-combusted gasoline to water and this, in part, may explain the larger occurrence of MTBE in surface-water sources.

We also conduct research on the fate and transport of MTBE in ground water and surface water through the USGS Toxic Substances Hydrology Program. In this program, we explore the range of geochemical and microbiological processes that determine how MTBE will behave when it enters soil, ground water or surface water. This research is demonstrating that MTBE does biodegrade under a wide range of environmental settings although at slower rates than many of the components of traditionally formulated gasoline. These ongoing studies have important implications for predicting the future concentrations of MTBE in water, where contamination has already occurred. These results are also important for the design and selection of remediation plans.

As part of the Toxic Substances Hydrology Program research, USGS scientists have demonstrated that naturally occurring microorganisms can biodegrade MTBE in many hydrologic environments, and in some cases, to harmless by-products. In some situations, however, biodegradation may be incomplete and tert-butyl alcohol (TBA) can be formed. Especially noteworthy are the observations that MTBE biodegrades in ground water and soil where sufficient oxygen is present and in bed sediments of streams, lakes, wetlands, and estuaries where MTBE-contaminated ground water can ultimately discharge. Essentially, these environments can be considered to be natural sinks for MTBE removal. As noted earlier, MTBE is expected to degrade slower in ground water than gasoline hydrocarbons of traditional gasoline formations. The length of time required to complete this removal is currently a topic of ongoing investigation.

The USGS has actively participated in two previous Federal reviews of MTBE and other oxygenates in gasoline. A Blue Ribbon Panel was appointed by the Administrator of the USEPA to investigate the air-quality benefits and water-quality concerns associated with oxygenates in gasoline, and to provide independent advice and recommendations on ways to maintain air quality while protecting water quality. In 1998-1999, Dr. John Zogorski of the USGS served as a water-quality consultant to the Blue Ribbon Panel and three USGS scientists testified before the Panel. An important finding of the Blue Ribbon Panel is that the major source of MTBE ground-water contamination appears to be releases from underground gasoline storage systems. Many of these tanks have been removed permanently or upgraded in the 1990s, and thus this source is likely to diminish in the coming years. Other major sources of water contamination were stated to be from small and large gasoline spills and from recreational watercraft, especially those with older model 2-cycle motors. USGS has documented low levels of MTBE in urban air, urban precipitation, and urban stormwater, and these sources may cause low concentrations of MTBE in surface water and ground water. MTBE has also been found in spills of home fuel oil in Northeastern States.

During 1995-96, at the request of the USEPA and the Office of Science and Technology Policy (OSTP), the USGS co-chaired an interagency panel to summarize what was known and unknown about the water-quality implications of the production, distribution, storage, and use of fuel. Our efforts were published in 1997 as a chapter in a report entitled "Interagency Assessment of Oxygenated Fuels" prepared by the National Science and Technology Council, Committee on Environment and Natural Resources. The chapter summarizes the scientific literature and data on the sources, occurrences, concentrations, behavior, and the fate of fuel oxygenates in ground water and surface water. We also discussed the implications for drinking water and aquatic life, and made recommendations of information needed to better characterize the occurrence of MTBE and other oxygenates in the Nation's drinking-water supplies. Furthermore, last year, USGS and Oregon Graduate Institute scientists co-authored a feature article in the journal *Environmental Science and*

*Technology*, a publication of the American Chemical Society. A salient part of the article summarized important information about MTBE including: growth in production; solubility, transport and degradation in ground water; releases from leaking underground fuel tanks; and the effect of select factors, such as aquifer recharge, the presence of low permeability stratum, and water utility pumping rates. This information helped to determine the likelihood of MTBE reaching community water-supply wells. Based on available but admittedly incomplete data for 31 States, the authors determined that about 9,000 community wells may have one or more leaking underground storage tanks nearby (i.e., within 1-km radius of the well). Because detailed information on the community wells, storage tanks, and hydrogeology were not available, the authors could not determine the number of wells at risk.



Unfortunately, some of the press coverage of this article inaccurately stated that 9,000 drinking-water wells were contaminated with MTBE. As stated in the journal publication, not all community wells with gasoline releases nearby are at risk because not all gasoline releases contain MTBE, and not all MTBE-gasoline releases are sufficiently large to pollute a nearby well. Also, many wells draw water from the deeper zones of aquifers and many wells are largely isolated from land-surface contamination by low permeability stratum, technically called aquitards. Based on these factors, data from the studies mentioned previously, and a recent survey by others, we would estimate that the number of community wells contaminated is far lower than 9,000 for 31 States.

In summary, the USGS has not found widespread, high-level MTBE contamination in rivers, reservoirs, and ground water that are actively used as the sources for Community Water Systems. Furthermore, we have not found such contamination in public wells and domestic wells sampled in our NAWQA Program, or in the drinking water of Community Water Systems in 10 Northeastern and Mid-Atlantic States. We have, however, identified MTBE (and some other VOCs) fairly frequently in ground water, source water, and drinking water at concentrations below USEPA's advisory. We also conclude that the frequency of detection of MTBE is larger in RFG Areas, in comparison to other areas of the Nation. Approximately 85 million people reside in RFG areas that use MTBE extensively, and drinking water in these areas is provided almost equally from surface water and ground water.

There are multiple strategies for dealing with situations where MTBE contamination of ground water has taken place and these should include strategies that take maximum advantage of the natural attenuation that we observe in our research. Within available resources, more research would be helpful to provide guidance on the most cost-effective strategies for protecting drinking water sources in those areas that have become contaminated.

I appreciate the opportunity to testify on the results of USGS assessments and research on MTBE. I am happy to try to respond to any questions of the Subcommittee.

Mr. GILLMOR. Thank you very much.

We will go to John Stephenson, who is the Director of Environmental Issues for the U.S. General Accounting Office.

#### STATEMENT OF JOHN B. STEPHENSON

Mr. STEPHENSON. Mr. Chairman, members of the subcommittee, I am pleased to be here to discuss the MTBE issue.

As you know, MTBE is a gasoline additive used primarily in areas of poor air quality to help limit air pollution. However, there are in increasing numbers reports of MTBE contamination in the Nation's water supply.

Just a few weeks ago a school in Roselawn, Indiana, discovered that the children had been drinking water with nearly 10 times the EPA recommended safe level of MTBE; and it is suspected of causing children's nosebleeds and reported health problems in that area.

Today, I would like to discuss the relationship between MTBE contamination and leaks, overflows and spills from underground storage tanks primarily at gas stations. EPA, working through the States is responsible for preventing such releases. However, as we reported last year, many tanks continue to leak. These releases contaminate soil and groundwater and pose health risks to those who live nearby or drink the water. As a result, several communities have had to close their drinking water supplies.

How big is the MTBE problem? Currently—and I apologize for the small size of these graphics, but they are in my statement for the record—as shown in this chart, 17 States and the District of Columbia use gasoline containing MTBE to limit air pollution in specific areas. These are those 17 States. However, the majority of the 50 States have reported finding MTBE at contaminated tank

sites and increasingly in groundwater, surface water and drinking water, albeit mostly in small concentrations.

These data suggest that many more than these 17 States are using gasoline containing MTBE. This is possible because of cross-contamination from pipelines and trucks used to deliver gasoline across the country or from tanks that formerly contained MTBE gas. Also, many States use MTBE in smaller quantities as an octane enhancer.

MTBE's health affects have not been conclusively established, as we have heard today, but the risk can range from nausea to kidney or liver damage or potentially even cancer. Because the research is still inconclusive, EPA has chosen not to regulate MTBE but to simply advise people not to drink water that contains concentrations in excess of 40 parts per billion.

However, as shown in this next chart, 14 States have gone further to partially or completely ban the use of MTBE within their borders. Most of these bans do not become effective until 2003 through 2005.

In addition, seven States have established their own health-based drinking water standards for MTBE. Some States' standards, like California and New Hampshire's, are more stringent than EPA's 40 parts per billion; and some States like, Texas, New Jersey and Massachusetts, are less stringent.

We believe a large part of the MTBE problem can be addressed by eliminating and cleaning up releases from underground storage tanks, and States are making good progress toward this end. In fiscal year 2001, States reported they had completed cleanups of 64 percent of the more than 400,000 known releases and had begun some type of cleanup action for another 26 percent.

As shown in this chart, States still have a formidable cleanup workload. States with more than 5,000 remaining cleanups are shown in gray on this chart. In addition, States face a potentially large but unknown cleanup workload. These include unidentified abandoned tanks and as many as 200,000 active tanks that pose risk because their leak detection and prevention equipment is not being properly operated or maintained.

In addition, most States do not inspect their tanks frequently enough, at least once every 3 years according to EPA, to conclusively determine how many tanks are still leaking.

Finally, cleanup involving MTBE can be more expensive because it leaches faster and farther than other gasoline contaminants.

Generally, the tank owner pays the cost of the cleanup, which averaged about \$88,000 per site last year. However, in cases where ownership cannot be determined or the owner cannot pay, the Federal Government and several States operate trust funds replenished primarily through gasoline taxes to help pay for the cleanups.

That concludes my statement, and I will be happy to answer any questions.

[The prepared statement of John B. Stephenson follows:]

PREPARED STATEMENT OF JOHN B. STEPHENSON, DIRECTOR OF ENVIRONMENTAL  
ISSUES, U.S. GENERAL ACCOUNTING OFFICE

Mr. Chairman and Members of the Subcommittee: I am pleased to be here today to discuss the increasing concern that our nation's waters are becoming contaminated with methyl tertiary butyl ether (MTBE). About a third of the states, in cer-

tain areas, use gasoline that contains MTBE to help them limit air pollution because it burns cleaner. However, the substance could also pose risks to human health, especially as a contaminant in drinking water wells. One of the primary ways in which the contaminant has migrated into wells and groundwater is from leaking underground tanks used to store gasoline. The Environmental Protection Agency (EPA) has the responsibility through the Underground Storage Tank Program and working primarily through the states to ensure the tanks do not leak, and if they do, that the contamination is cleaned up. However, several studies, including our own report on EPA's implementation of the tank program,<sup>1</sup> showed that many tanks have leaked—and continue to leak—hazardous substances, such as MTBE and benzene. These leaks, in turn, contaminate soil and groundwater, posing health risks to those who live nearby or drink the water. Such health risks can range from nausea to kidney or liver damage or even cancer. As a result, some communities have closed their drinking water wells. A recent news report illustrates the problem. A school in Roselawn, Indiana, discovered that the children had been using and drinking water with nearly 10 times the EPA-recommended safe level of MTBE. I understand that an investigation is trying to determine whether the MTBE came from a nearby tank and whether it is a factor contributing to the children's nosebleeds and other reported health problems.

When there is a gasoline overflow, spill, or tank leak—referred to as releases—the tank owners and operators are to report the incident to EPA if the release is on tribal lands, or otherwise to the state agency implementing the tank program, and to initiate cleanup. Most releases are not discovered, however, until the tanks are taken out of service, when they must be permanently closed to eliminate future leaks. To help states cover their program costs, the Congress annually provides the states with grants from a trust fund it created in 1986. In fiscal year 2001, states each received from \$252,000 to \$4.5 million, depending primarily on their cleanup workload, for a total of \$58.7 million. States can use these resources for, among other things, cleaning up releases when the owner or operator is unable or unwilling to perform the cleanup, or cannot be identified. The fund is replenished primarily through a \$.001/gallon federal tax on gasoline and other fuels and had a balance of \$1.7 billion at the end of fiscal year 2001.

Because of rising concerns about continuing releases and the resulting contamination, especially from MTBE, we determined the (1) extent to which these releases may contain MTBE, and whether the contaminant poses health risks or affects cleanups, (2) progress states have made in cleaning up releases, and (3) the party responsible for the cleanup costs. In summary, we found the following:

- A majority of the 50 states have reported finding MTBE when they discover gasoline contamination at their tank sites and, increasingly, in their groundwater, surface water, and drinking water. This widespread contamination occurs, even though currently only certain communities in only about one-third of the states use gasoline with MTBE as a fuel additive. Contamination continues because, among other things, MTBE has been used in the past as an octane enhancer and is currently transported through the same fuel pipes and trucks that deliver gasoline across the country.<sup>2</sup> MTBE's health effects have not been conclusively established, but the federal government has determined it to be a potential human carcinogen. Because of the health uncertainties, EPA has not regulated MTBE; instead it has simply advised people not to drink water that contains concentrations in excess of 20 to 40 parts per billion. Fourteen states have gone further on their own and partially or completely banned the use of MTBE within their borders or established other regulations on its use. According to a December 2000 report on a survey of state tank program managers sponsored by EPA,<sup>3</sup> finding MTBE at a tank site does not typically affect the cleanup method but can increase the time and cost of cleanup because MTBE travels faster and farther than other gasoline contaminants. Several states reported that their cleanup costs doubled as a result of addressing MTBE.
- States have made progress in addressing the releases they have discovered, including MTBE contamination, but face a continuing and substantial cleanup workload. States reported to EPA that they have completed cleanups of 64 percent of the more than 400,000 identified releases as of the end of fiscal year 2001, and have begun some type of cleanup action for another 26 percent. Nev-

<sup>1</sup> *Environmental Protection: Improved Inspections and Enforcement Would Better Ensure the Safety of Underground Storage Tanks* (GAO-01-464, May 4, 2001).

<sup>2</sup> According to a recent EPA estimate, MTBE is used as an additive in about 87 percent of gasoline in the United States.

<sup>3</sup> New England Interstate Water Pollution Control Commission, *A survey of State Experiences with MTBE Contamination at LUST Sites* (Dec. 15, 2000).

ertheless, states still have to both complete these ongoing cleanups and begin cleanups for almost another 40,000 releases, or determine that they do not pose enough risk to warrant a cleanup. In addition, states face a potentially large, but unknown, future workload in addressing releases from a number of sources, as we previously reported. These include unidentified abandoned tanks, identified but empty and inactive tanks that have not yet been removed, active tanks that leak because their leak detection and prevention equipment is not being properly operated and maintained, and unreported leaks from tanks in those states that do not inspect them. Some states reported that even their new tanks with the latest leak detection and prevention equipment are leaking, increasing the cleanup workload. A majority of the 13 states that we contacted—those that had cleaned up many releases or had a large backlog left to address—identified the lack of staff to oversee cleanups as a barrier affecting cleanup progress.

- States typically depend on tank owners or operators to pay some portion of cleanup costs and cover the remainder with their own funding programs. The states depend on the relatively small federal trust fund grants to pay staff to oversee cleanups and administer their programs. States typically do not receive appropriations from their legislatures to cover their cleanup costs but pay for them out of funds supported by state gasoline tax revenues, annual tank fees, or both. In a May 2001 survey of state funding programs, by the Vermont Department of Environmental Conservation,<sup>4</sup> 36 states reported having adequate funding to cover their current costs while 11 reported having more costs to cover than funds available. In addition, 16 states have stopped accepting, or are scheduled to stop accepting, new claims for reimbursements, leaving it up to tank owners to obtain adequate insurance or other means to cover their cleanup liabilities. In the future, some states may seek additional federal support when and if their funding programs end and they turn their attention to addressing the many unidentified abandoned tanks nationwide that have no financially viable owners to pay for cleanup.

#### MTBE HAS BEEN DETECTED NATIONWIDE BUT THE EXTENT OF ITS EFFECT ON HUMAN HEALTH AND THE CLEANUP OF RELEASES IS UNCERTAIN

While the full extent of MTBE contamination is unknown, most states reported in the EPA-sponsored survey that they are finding the contaminant in groundwater from releases at tank sites, and some are beginning to find it in their drinking water sources. The extent to which the contaminant poses a health risk is uncertain, however, in part because EPA does not yet have the data necessary to determine MTBE's health effects. Detecting MTBE from a release typically does not influence the type of cleanup method selected, but could increase the time and cost of the cleanup, according to a number of states.

#### *Most States Have Found MTBE in Groundwater from Releases at Tank Sites; Fewer Have Found It in Their Drinking Water*

Portions of 17 states and the District of Columbia currently use gasoline potentially containing the additive MTBE to limit air pollution (see figure 1). However, MTBE is being detected nationwide because, among other things, it had been used as an octane enhancer in gasoline in the past and because the pipes and trucks used to carry gasoline throughout the nation have been cross contaminated with the substance.

Forty-four states reported in the EPA-sponsored survey that they sample groundwater at leaking tank sites and test it for MTBE.<sup>5</sup> Furthermore, 35 states reported that they find MTBE in groundwater at least 20 percent of the time they sample for it, and 24 states said that they find it at least 60 percent of the time.

States are not only finding MTBE at tank sites with reported releases—half of the states reported finding it at tank sites even when there was no documented release, although they did not know the number of these cases. About half of the states also reported finding MTBE that they could not attribute to a leaking tank and suspected that it came from other sources, such as above-ground tanks used to store fuel.

The extent of MTBE contamination may be understated because some tank releases go undetected and because only 19 states said that they are taking any extra steps to make sure that MTBE is not migrating further from a tank site than other contaminants when a release has been detected. MTBE is less likely to cling to soil than other gasoline components and dissolves more easily in water, allowing it to

<sup>4</sup>Vermont Department of Environmental Conservation, *A Summary of State Fund Survey Results* (May 2001). The Department conducts this survey annually.

<sup>5</sup>Washington reported that it planned to add such testing by 2001.

travel faster, farther, and sometimes deeper. Therefore, parties might have to use more test wells around a leaking tank to determine if and where MTBE is present. If states do not conduct the extra tests, they may not detect the MTBE.

Some of the states that have identified MTBE contamination have also found that it reached drinking water sources. More states may not have reported finding MTBE in part because only 24 states in the EPA-sponsored survey said that their drinking water program offices routinely analyzed drinking water sources for MTBE, while another 24 said that their offices were not conducting these analyses. Although a number of states were not sure how many public or private drinking water wells had been contaminated by MTBE, 11 states said that at least 10 public wells had been contaminated at the time of the survey, and 15 states reported that 10 private wells had been closed. The Maryland Department of the Environment reported that MTBE was found in low concentrations in about 100 of more than 1,200 water systems tested. In contrast, some communities in California, Kansas, and Maine have had more extensive problems with contaminated groundwater. For example, Santa Monica, California, closed seven wells supplying 50 percent of the city's water.

At the national level, the U.S. Geologic Survey (USGS) and EPA have conducted some water-monitoring efforts, but have yet to find high concentrations of MTBE in many drinking water sources. According to a USGS study, MTBE was detected in generally lower concentrations in 14 percent of surface water sources.<sup>6</sup> Another USGS study points out, however, that it was 10 times more likely to find MTBE in areas that use it as a fuel additive to reduce pollution.<sup>7</sup> A third USGS study, done in cooperation with EPA and issued in 2001, examined monitoring data from over 2,000 randomly selected community water systems in the northeast and mid-Atlantic regions and reported that MTBE was detected in about 9 percent of the systems that analyzed samples for MTBE.<sup>8</sup> Finally, EPA has completed the first year of a 3-year effort—under the recently implemented Unregulated Contaminant Monitoring Rule—to have all large water systems (serving populations of 10,000 or more), as well as selected small public water systems (serving populations of 3,000 or less), test their water for MTBE. Of the one-third of the systems required to test in the first year, 1 of 131 large systems and 3 of the 283 small systems detected the substance.

#### *Reviews on the Extent that MTBE in Drinking Water Poses Health Risks Are Still Pending*

An interagency assessment of potential health risks associated with fuel additives to gasoline, primarily MTBE, concluded that while available data did not fully determine risks, MTBE should be regarded as a potential carcinogenic risk to humans.<sup>9</sup> However, the extent that MTBE may be present in high concentrations in drinking water and jeopardizing public health is unknown. Because MTBE has a bad taste and odor at relatively low concentrations, people may not be able to tolerate drinking contaminated water in large enough quantities to pose a health risk. On the other hand, some people may become desensitized to the taste and smell and could end up drinking MTBE for years in their well water, according to the EPA program manager.

EPA has efforts underway to fill in some of the data gaps on the health effects of MTBE and its occurrence in drinking water supplies. Additional research and water quality monitoring must be concluded before EPA can determine whether a water quality standard—an enforceable limit on the concentration of MTBE allowed in drinking water—is warranted. EPA has issued an advisory suggesting that drinking water should not contain MTBE in concentrations greater than 20 to 40 parts per billion, based on taste and odor concerns. EPA is considering taking further steps to regulate MTBE, but notes that to establish a federally enforceable standard could take about 10 years. While the potential health risks of MTBE are uncertain, 14 states—9 of which are not required to use a fuel additive to limit air pollution in certain areas—have partially or completely banned the use of MTBE within their boundaries (see figure 2).

<sup>6</sup>National Survey of MTBE, Other Ether Oxygenates, and Other VOCs in Community Drinking Water Sources, U.S. Geological Survey (Open-File Report 01-399, 2001).

<sup>7</sup>Contaminants of Drinking Water Sources in 2001: Recent Findings of the U.S. Geological Survey, U.S. Geological Survey (Open-File Report 00-510, 2001).

<sup>8</sup>Occurrence and Distribution of Methyl tert-Butyl Ether and Other Volatile Organic Compounds in Drinking Water in the Northeast and Mid-Atlantic Regions of the United States, 1993-98, U.S. Geological Survey (Water Resources Investigations Report 00-4228, 2001).

<sup>9</sup>National Sciences and Technology Council, Committee on Environment and Natural Resources, *Interagency Assessment of Potential Health Risks Associated with Oxygenated Gasoline* (Feb. 1996).

In addition, seven states reported in the December 2000 EPA-sponsored survey that they had established their own health-based primary drinking water standard for MTBE, as shown in figure 3. Six of these states currently use fuel additives to limit air pollution and the seventh state voluntarily used such additives until 1999.

Another five states reported establishing a secondary standard to limit the allowable amount of MTBE in drinking water. These standards vary considerably, however, with concentrations ranging from 5 to 70 parts per billion.

*Discovery of MTBE Does Not Drive the Cleanup Methods Implemented, but Could Increase the Cleanup's Duration and Cost*

According to the EPA-sponsored survey, 37 states said that finding gasoline, or its components of concern,<sup>10</sup> in soil or groundwater at a tank site is the primary driver of cleanup activities, not the presence of MTBE. In other words, the methods used to clean up gasoline can also be used to address MTBE contamination. These proven cleanup technologies include pumping and treating groundwater at its source, treating the water at its point of use by running it through a filter, or using a process known as air sparging (injecting air into the contaminated area to volatilize and extract MTBE). Letting the contaminant naturally break down over time—known as natural attenuation—may not be as effective as with other components of gasoline because MTBE persists longer in soil and groundwater.

However, addressing MTBE could add time and costs to cleanups. According to the EPA-sponsored survey, 16 states reported cost increases as a result of MTBE cleanup, most less than 20 percent; 5 states reported that their costs had doubled. States spent, on average, about \$88,000 addressing releases at each tank site in fiscal year 2001. Nineteen states indicated that it could cost more to test for MTBE because they take additional steps to ensure that this contaminant is not migrating beyond other contaminants in a release. Several states reported that their laboratories charged \$10 to \$50 more per sample to analyze for MTBE. In addition, many of the 16 states that cited higher cleanup costs for MTBE attributed these increases to such factors as longer plumes and increased cleanup time. Finally, the discovery of MTBE can increase costs because filters used to remove MTBE from water have to be changed more frequently.

STATES HAVE MADE PROGRESS IN CLEANING UP TANK RELEASES, BUT STILL FACE A POTENTIALLY LARGE CLEANUP WORKLOAD

States reported to EPA that as of the end of 2001, they had completed cleanups of 64 percent (267,969) of the 416,702 known releases at tank sites and had begun some type of cleanup action for another 26 percent (109,486), as figure 4 illustrates.

Because states typically set priorities for their cleanups by first addressing those releases that pose the most risk, states may have already begun to clean up some of the worst releases to date. However, EPA tank program managers cautioned that some of the many cleanups that are underway may still be in their early stages because states have varying criteria for “underway.” For example, California reports a cleanup is underway as soon as a release is reported, even if no work has begun. In addition, states still have to address the remaining 39,247 known releases (9 percent) where cleanup is not underway by either ensuring it has begun or is not needed because the releases do not pose a risk. Figure 5 illustrates the remaining cleanup workload for known releases in each state and the District of Columbia.

As the figure shows, while states have made progress, seven states still have more than 5,000 releases that they have not fully addressed. Most of the 13 states we contacted cited a lack of staff as a barrier to achieving more cleanups. For example, the May 2001 Vermont survey of state funding programs indicated that, on average across the states, each staff person was responsible for overseeing about 130 tank sites during that year.

In addition to this known workload, states most likely will continue to face a potentially large but unknown future cleanup workload for a number of reasons:

- In a June 2000 report to the Congress, EPA estimated that as many as 200,000 tanks nationwide may be unregistered, abandoned, or both, and have not been assessed for leaks.<sup>11</sup>
- Furthermore, even though many owners chose to close their tanks rather than upgrade them with leak detection and prevention equipment as federally required, tens of thousands of tanks nationwide are still empty and inactive, and have

<sup>10</sup> Some of the components of concern in gasoline include benzene, toluene, ethylbenzene, and xylene

<sup>11</sup> *Report to Congress on a Compliance Plan for the Underground Storage Tank Program*, U.S. Environmental Protection Agency (EPA 510-R-00-001, June 2000).

not been permanently closed, as we previously reported. Consequently, any leaks from these tanks may not have been identified.

- We also reported that an estimated 200,000 or more active tanks were not being properly operated or maintained, increasing the chance of a spill or leak. For example, 15 states reported that leak detection equipment was frequently turned off or improperly maintained.
- In addition, we reported that many states do not inspect their tanks frequently enough to ensure that they are not leaking and that known releases are reported. Only 19 states were physically inspecting all of their tanks at least once every 3 years—the minimum EPA considers necessary for effective tank monitoring. In addition, 22 states were not inspecting all of their tanks on any regular basis.
- While the number of leaks should decrease in the future—because all new of active tanks should have leak detection and prevention equipment—we previously reported that 14 states traced newly discovered leaks to upgraded tanks and 20 states did not know whether their upgraded tanks leaked.
- Finally, 10 states reported in the EPA-sponsored survey that they had reopened a small number of completed cleanups because MTBE had been subsequently detected. If more states follow suit, the future cleanup workload will increase, although the size of this workload is unknown. In addition, states may be responsible for the costs of these reopened cleanups because tank owners and operators are not required to maintain financial responsibility for tanks that were properly cleaned up or closed.

#### STATES RELY ON THEIR OWN PROGRAMS AND PRIVATE PARTIES TO PAY FOR CLEANUPS, BUT MAY REQUIRE FEDERAL FUNDING TO ACCELERATE CLEANUPS AND ADDRESS ABANDONED TANKS

States have relied primarily on their own funding programs and private parties to pay for cleanups, using the relatively small federal trust fund grants they receive for staff, program administration, and to a lesser extent, cleanups. States' reliance on private and federal funding could increase in the future if they end their funding programs and begin to address the problem of abandoned tanks with no financially viable owner.

#### *State Funding Programs and Private Parties Have Paid for Most Cleanups*

In creating the Underground Storage Tank program, the Congress expected tank owners and operators to take financial responsibility for cleaning up contamination from their tanks, correcting environmental damage, and compensating third parties for any injuries. Tank owners and operators were to demonstrate that they had the financial resources to cover potential cleanup liabilities. Initially, private insurers were hesitant to take on the risks of providing liability coverage to owners and operators of underground storage tank systems, so many states created their own financial assurance funds. These state funds could be used to cover the financial responsibilities of owners and operators for site cleanup as long as the state funds met the federal financial responsibility requirements. Forty-seven states established such programs most often from a gasoline tax, an annual tank fee, or both, rather than state appropriations. The remaining three states relied on owners and operators to locate suitable insurance, now more readily available, or other financial resources. Under many state programs, owners or operators pay for the cleanup and seek reimbursement for a portion of the cleanup costs from the state. Six of the 13 states we contacted cap the amount of reimbursements and expect tank owners and operators to be financially liable for the remaining costs.

In the May 2001 Vermont survey of state funding programs, states reported spending a cumulative \$6.2 billion from their funds since their programs began (13 states did not report their costs). The amount of private funds spent on cleanups is unknown. At the time of the survey, 36 states reported having adequate funding to cover their current costs, but 11 other states said that they were about \$625 million short of the funds necessary to cover known claims. Program managers in five of the 13 states we contacted said that their state funds were stable. In addition, nine states reported that eligibility for their programs had ended<sup>12</sup>—meaning they would no longer accept any reimbursement claims for new releases—and another seven states expected eligibility to end by 2026. Furthermore, the program fees used to replenish state programs had expired in 1 state and were expected to expire in another 12 states within the next decade. As a result of these provisions, tank own-

<sup>12</sup>In Maine, fund eligibility expired only for “non-conforming” tanks—those which had not been upgraded with leak detection and prevention equipment.

ers and operators would be responsible for cleanup costs with no state funding support.

*States Have Used Federal Funds Primarily for Cleanup Oversight*

States have been using federal grants from the Leaking Underground Storage Tank Trust Fund primarily to pay for staff to oversee cleanups and pursue owners and operators so that they clean up their sites, according to the EPA program manager. States cannot use these federal funds to clean up releases when an owner or operator can pay. States spent \$662.5 million in federal trust fund dollars from fiscal year 1987 through fiscal year 2001, roughly 10 percent of the expenditures from states' funds during the same period. States used \$19.5 million, or 36 percent, of the \$58.7 million they received in fiscal year 2001 grants on cleanup (see figure 6).

Of the 13 states we contacted, 7 said that their programs rely on the federal grants. On the other hand, for example, a program manager in Florida said that the state's program does not depend on federal grants because it is a small amount of money compared with the amount coming from the state fund. Some states use their federal funds for staffing costs. However, a Maryland program official pointed out that the size of the annual federal grants to states has not kept pace with the salary and other costs they must cover for staff. An Indiana program official attributed a backlog of 4,000 cleanups at one point in the state's program to a lack of federal funding that could be used to pay for additional staff. States may be using their federal trust fund grants to pay for staff because the use of these funds is more restrictive than the state funds, which can be used to reimburse tank owners for their cleanup costs, among other things.

Six states have used an additional funding source that receives federal support to cover some cleanup costs, namely, their Clean Water State Revolving Funds. States get federal seed money to initiate and maintain this type of fund. Eligible parties can apply for loans under the fund and have used them to cover a variety of leak prevention and cleanup projects. According to the EPA, the six states using this vehicle have made a total of \$84 million in loans for tank cleanups through June 2000. Program managers in 9 of the 13 states we contacted said that they did not expect to use their revolving loan fund for tank cleanups.

*Some States May Seek More Federal Support for Cleanups in the Future*

In addition to the federal grants and loan funds, some states may look to the federal government in the future to help them clean up those abandoned tanks that pose health risks when financially viable parties cannot be identified to pay for cleanups. States admit that they do not often identify releases until they are closing or removing tanks, meaning that EPA and the states might inadvertently be underestimating the risks and cleanup workload that abandoned tanks pose.

States may seek additional federal assistance to address abandoned tanks if state funding programs expire or are depleted. As of January 2002, states can access one new source of federal funding for abandoned tanks, made possible by the Small Business Liability Relief and Brownfields Revitalization Act. Under the act, the Congress authorized up to \$50 million annually to clean up properties that may be contaminated by a petroleum release, including abandoned tanks.

SCOPE AND METHODOLOGY

To respond to your questions, we primarily analyzed data (1) that states reported to EPA on the status of tank releases, (2) from the December 2000 report on the EPA-sponsored survey of state tank programs, and (3) from the May 2001 Vermont survey of state cleanup funding programs. In addition, we contacted 13 state tank program managers to discuss their cleanup workload, their concerns with MTBE, and their approach for funding cleanups. We selected these states because they had addressed the largest number of releases, had the largest backlog, or both. We also met with EPA tank program managers to discuss cleanup efforts. We performed our work from April to May 2002 in accordance with generally accepted government auditing standards.

Mr. Chairman, this concludes my statement. I would be pleased to respond to any question you or Members of the Committee may have.



Figure 1: States Using MTBE and Other Fuel Additives to Limit Air Pollution

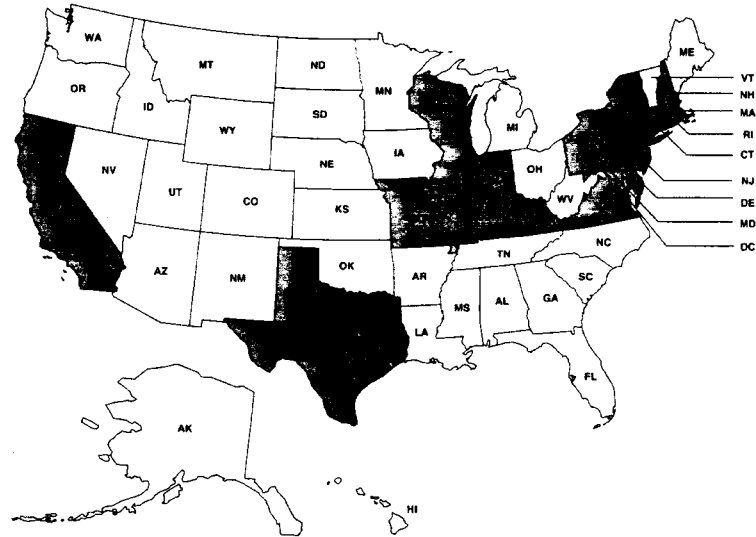
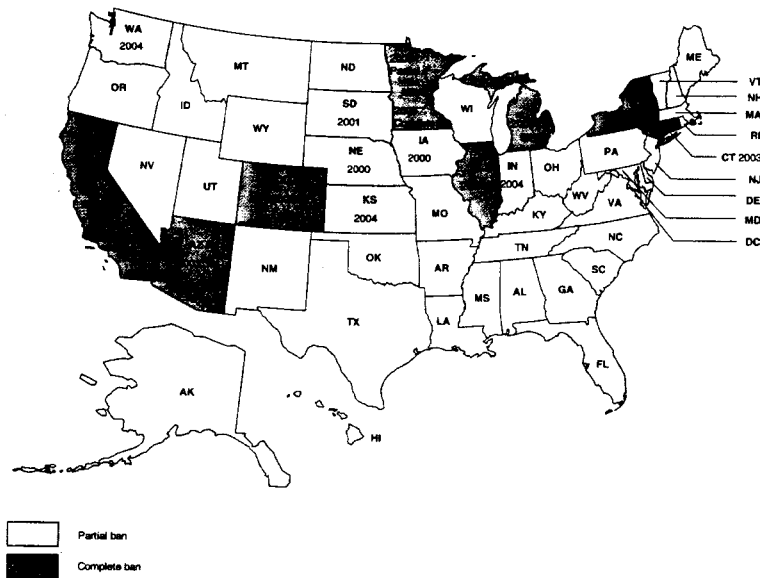
Figure 2: States That Have Banned MTBE  
(year of ban)

Figure 3: States With a Health-Based Drinking Water Standard for MTBE



Source: *A Survey of State Experiences with MTBE Contamination at Leaking Underground Storage Tank Sites*, New England Interstate Water Pollution Control Commission (December 15, 2000).

Figure 4: States Have Made Progress in Cleaning Up Tank Releases

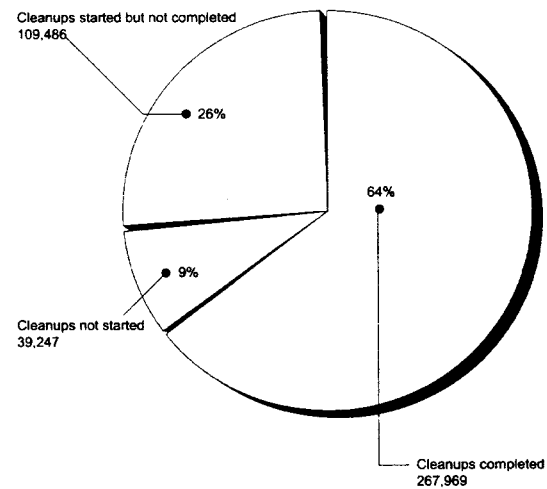


Figure 5: States Still Have a Number of Cleanups to Initiate or Complete

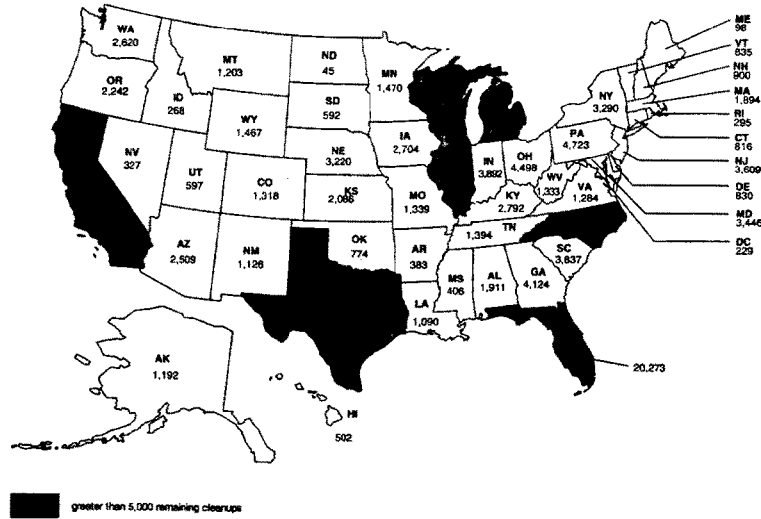
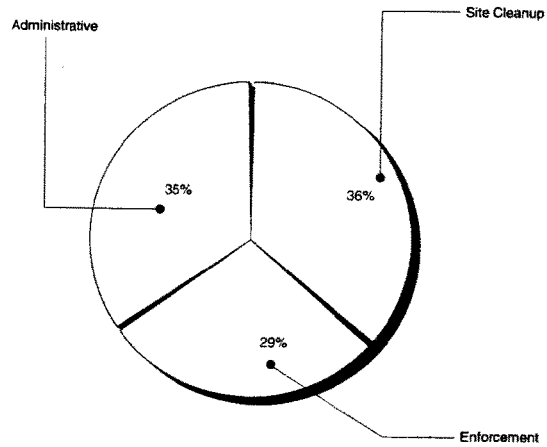


Figure 6: States' Use of Grants from the Federal Trust Fund



Source: EPA.

Mr. GILLMOR. Mr. Stephenson, let me follow up on one question regarding the leaching qualities of MTBE. Compared to other substances, how fast, how far would it go into the groundwater?

Mr. STEPHENSON. I don't know the specifics. My understanding is that it leaches very fast in soil. Therefore, it reaches groundwater more readily than, say, benzene or other contaminants in gasoline.

Mr. GILLMOR. Can you give us a ballpark figure? Take your typical tank with a leak, what kind of area are we talking about that we are going to find MTBE? And I am going to direct that open-ended question to anybody.

Mr. STEPHENSON. I don't have a specific answer on that.

Mr. GILLMOR. Are we talking a football field? Badminton court?

Mr. MILLER. That depends upon the amount of fuel leaked and the geohydrology. It varies all over.

Mr. GILLMOR. When you get to cleanup, what is necessary physically to necessitate what you would consider a cleanup? How much dirt are you going to have to move? What are you going to have to do?

Mr. STEPHENSON. My understanding is that you actually aerate the soil and hope that most of the MTBE will evaporate. Again, that depends on the size of the area of contamination that you have to clean up as to how long that takes and how expensive that becomes.

Mr. GILLMOR. Mr. Grumbles, we heard testimony here and in the past to what extent MTBE is a health issue and to what extent it is a taste and odor issue. How would you answer that question? Is it both?

Mr. GRUMBLES. Mr. Chairman, I think it has the potential to be both. Our preliminary recommendations in 1997 in the consumer advisory was that levels of MTBE that were unlikely to cause taste or odor problems would be less than 20 parts per billion. They were also likely to be safe from a public health standpoint.

EPA is continuing to research health issues associated with MTBE. We hope to have more definitive information on that in draft form in the coming months and in final health assessment report next year.

But I think the answer is that, clearly, there are taste and odor problems, and there may very well be health problems, but it depends on what the level is.

Mr. GILLMOR. Based on your statement which the benchmark was 20 parts per billion, although that is not scientifically established but kind of a figure that is being used, if we take the fact that most sites are found to be 5 parts per billion or less, that hopefully would help us confine the problem to fewer areas. Do we have any idea of all the sites that are out there, which there are over 400,000 of them, how many of them would be in the 20 parts per billion or above?

Mr. GRUMBLES. My sense is that it is a very small number, at least based upon our current findings and data.

I know also, and Mr. Miller may have some data as well, basically what we have been finding is that those instances where there is MTBE it is generally below the 20 parts per billion.

Mr. MILLER. Mr. Chairman, the estimate is perhaps 1 percent of those sites might fit that category.

Mr. GILLMOR. That is very helpful. Thank you.

Mr. Grumbles, the Leaking Underground Storage Tank regulations became effective in 1998. In your opinion, have those regulations helped in addressing concerns about MTBE contamination?

I would also ask the other members of the panel if they have a view on that.

Mr. GRUMBLES. From the perspective of cleaning up the problem, it has helped. The underground storage tank program which has been in place since 1988 has also helped. EPA has given States about \$800 million in Leaking Underground Storage Trust Fund funding to help in terms of State assessment and cleanup for petroleum contamination, including MTBE releases. Since 1988, EPA has provided over \$230 million to States in LUST funding.

Also, through the authorities under that program, EPA has been funding some MTBE pilot programs in various places throughout the country; and through that program and statutory authorities as well, it has been providing some technical support such as to South Lake Tahoe.

My figures, Mr. Chairman, indicate that, through the funding, States together with EPA have cleaned up about 370,000 petroleum releases, averaging about 19,000 cleanups a year since 1988. Some of these cleanups have clearly helped to address the MTBE contamination, but we do not have data at this point on exactly how many.

Mr. GILLMOR. My time has expired.

I recognize the ranking member, Mr. Pallone.

Mr. PALLONE. Thank you, Mr. Chairman.

This question is to Mr. Grumbles. A number of States have established drinking water guidelines and action levels for MTBE. I know that EPA has established a drinking water advisory and a monitoring rule that does not have an enforceable health-based standard.

You said in your testimony, Mr. Grumbles, that you are committed to making a decision as to whether or not health-based regulations for MTBE is appropriate, and you say you plan to issue a final health assessment next spring, which I guess would be a year from now. It seems to me, though, that you are kind of moving slowly, given the action that some of the States have taken, almost as if the States see this as a lot more serious in terms of the health impact than you do. I wonder why is that the case, or am I missing something?

Mr. GRUMBLES. I think you are missing something, Congressman.

Mr. PALLONE. I know that you say you are going to get to it by next year. That seems like a long time. What information does EPA feel it needs to establish a standard? Why the wait?

Mr. GRUMBLES. I appreciate the opportunity to elaborate on that. It is not that you are missing something, but EPA has been taking a multi-statutory, multi-media, combined effort to look at MTBE problems.

I work in the Office of Water, and one focus that we have in the Office of Water is on Safe Drinking Water Act authorities and fo-

cusing in on risk assessments and whether or not to establish a primary or secondary standard MCL for MTBE.

One of the things that we are doing is working closely with the Office of Research and Development on this risk assessment. I know that they have been working to try to get the right data to make sure that this is a scientifically sound decision in terms of the health assessment.

Mr. PALLONE. What is the information that is lacking that is going to take a year?

Mr. GRUMBLES. One of the things that is lacking is gathering data from all areas across the country and also translating that into relevant end points as to what is the right type of health standard.

Mr. PALLONE. Going back to what I said in the beginning, the States are having these guidelines and action levels, but you are telling us you don't feel that there is really a problem or that there may not be a problem and you need another year before you come out with some kind of health assessment. It seems to me that there is a difference there between these State guidelines, which obviously concern people, versus your statement today. I know you do not think that it is inconsistent, but why is it that the States seem to be more concerned about this at this point?

Mr. GRUMBLES. I don't know that the States seem to be more concerned. I know that some of the States have taken very specific actions in terms of phaseouts or established health-based standards or parts per billion regulatory requirements.

What I would try to communicate is, while EPA is going through the data to make sure that it is a risk-based approach to the most pressing problems and whether or not there should be a secondary standard or a primary standard in addition to the consumer advisory we have established, the Office of Air and Radiation is looking specifically at the authorities under TSCA in terms of the phaseout and whether or not that is appropriate.

One of the things that I want to convey is, under the statutory framework of the Safe Drinking Water Act, one of the things that is important to EPA is to gather through the unregulated monitoring rule the data from the large public water supply systems from throughout the country to try to get a better picture.

Mr. PALLONE. Shouldn't we be requiring monitoring of all drinking water systems, especially those that rely on limited groundwater sources?

Mr. GRUMBLES. I would say that it would probably be prudent. I don't know if it would require a Federal mandate, but it would be prudent for any public water supply system to be looking for contaminants in the groundwater or surface water or source water that they use for drinking water purposes.

I think the basic principle where we start from is based on all of the debate regarding the Safe Drinking Water Act over the years, particularly the 1996 amendments, is to make sure that when we do impose a monitoring requirement or a regulatory provision that it is very clear that it is the best use of everyone's resources and from a risk-based standpoint it is a targeted good effort to get at particular contaminants.

Mr. PALLONE. Okay. Thank you. Thank you, Mr. Chairman.

Mr. GILLMOR. The gentleman from Illinois, Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman. A couple of quick questions. In December 1997 the EPA issued a drinking water advisory for MTBE. The question I had, based upon responses to other questions, is how long did that advisory—how long did it take you to get to the point in 1997 where you made an advisory for MTBE?

The reason I am asking that question is now we are 5 years after that. We are still asking questions. And the response, Mr. Grumbles, is, well, next year we are going to issue another finding based upon this. Regardless of who is in charge of the administration, we get constantly frustrated by saying, well, when are we going to make a decision? What is the time line?

So there must have been 5 years prior to 1997 that you probably researched it to say we are going to do this advisory. I may not be right. But maybe it took 5 years to develop that advisory. That is the question. How long did it take? Now we are 5 years after.

Because we are talking about 40 parts per billion. That is what you all recommend. And then out of the conversations we hear 20 parts per billion. No wonder we are kind of confused as to what is safe and what is not safe. And that is a very scattered array of buckshot that I just fired at you. So you pick which little piece of shot you want to respond to, and please do.

Mr. GRUMBLES. Well, thank you, Congressman. In terms of the up-front analysis process and how long it took before EPA provided the 1997 consumer advisory, I don't know exactly whether it was 2 years or a couple of years. It was a couple of years. Part of that was based on, in part, waiting to get some data, such as from USGS in 1995, some monitoring USGS was doing.

We were also working in terms of a blue ribbon panel to also get their views and their recommendations. But I believe that it was a couple of years before we finalized that consumer advisory.

Mr. SHIMKUS. You understand the concern we have?

Mr. GRUMBLES. I do understand that.

Mr. SHIMKUS. That would be helpful for us to at least get to a point, because we do also know that MTBE is proven to cause cancer in animals at extremely high doses; is that correct? Like rats or animals?

Mr. GRUMBLES. I have to say that from my own personal knowledge, I am not sure of the precise way to answer that question. I know from the data that I have had in preparations for the hearing that there have been some studies that have shown that at certain levels in laboratory animals there has been some cancer-causing affects.

Mr. SHIMKUS. I think that is correct. Our concern will be what is the effect of MTBE on humans at low doses? I think that is what this debate is.

Mr. GRUMBLES. Congressman, one of the reasons why we are working, and it is going to take more time before we issue the report on the health assessment, is the whole issue of dealing with the fact that there is already inhalation data, but there isn't much data in terms of ingestion of MTBE. So one of the areas, the gaps that we are trying to fill that is taking some time is to be able to translate and to extract data.

Mr. SHIMKUS. I am glad you mentioned that. Inhalation would mean breathing it in, correct? Which would not concern us on the LUST issue, would it, the underground storage tank issue unless you are a mole? We have moles in Illinois, a lot of them.

But the only follow-up is there are other ways for MTBE to enter into the atmosphere than just underground storage systems.

I am a guy now. I have got my chain saw. If I make the mistake of not getting gas that has 10 percent ethanol, I never hardly make that mistake, but if I am in a hurry and I unfortunately get some that is using MTBE as the oxygenate, and I overspill my little chain saw, that, in essence, could seep and be a contaminate if it runs down into the system. Or jet skis. I mean Lake Michigan for boaters. There is a lot of ways other than the underground storage tanks in which MTBE can enter into the environment?

Mr. GRUMBLES. As my colleagues would point out, there are other sources beyond underground storage tanks for MTBE releases.

Mr. SHIMKUS. I yield back my time. Thank you.

Mr. GILLMOR. We will go to a second round. I beg your pardon. Snuck back in on me. The gentlelady from California, Mrs. Capps.

Mrs. CAPPS. Thank you, Mr. Chairman. And thank you for your testimony, each of you. I have a couple of topics, so if I could address the first the one to you, Mr. Grumbles, and ask you about the LUST trust fund.

I understand that the surplus in this fund is expected to grow to over \$2 billion by the end of fiscal year 2002. There is a surplus almost of \$2 billion right now, and it keeps climbing. And so my question to the administration is: With the evidence that has been described today, why did this administration's budget cut the LUST funding by \$68,700?

Mr. GRUMBLES. Congresswoman, I appreciate very much your strong interest in this issue. I would have to say at the outset I am not—I am really not the best person to be able to respond to the question, partly because of the responsibilities in terms of EPA, where Assistant Administrator Marianne Horinko is the one who works most on the LUST fund. But I would just want to say that in the overall context of putting together the budget request, as I have observed, there has been some fairly standard requests in terms of the LUST program over the years.

I am not the best person to be able to explain exactly what the dollar amount was and why it was chosen. I can certainly, and I will, relay your question and your concerns about the funding level in the President's budget request.

Mrs. CAPPS. Mr. Chairman, I would like to follow up with a request that we have this information for our committee as part of our decisionmaking process, because, you know, the budget request is less than half of the interest this trust fund is going to earn this year. At the same time we have a huge backlog of contaminated sites, and I would assume that for whatever purposes, if it is even to assess the situation further, that we need access to this funding because safe drinking water is something we want our citizens to be absolutely confident of.

People are saying they don't know the extent of the risk. We know it smells bad and it tastes bad. But that is bad enough. But



if it is really dangerous and we have young children drinking it, what is going to be the effect on their overall lifespan and what kind of problems are we running into? This is something we should be addressing with every bit of urgency. So I was assuming that we would have someone here who could tell us why there was a cut in the funding for something that we need to bring attention to.

Mr. GRUMBLES. We certainly do recognize that MTBE contamination, or any kind of groundwater contamination or surface water contamination, does present a significant problem. It can present a public health problem. It clearly presents a problem to the utilities that may have to go with alternative water supplies. There are various mechanisms, authorities under the Federal environmental statutes beyond just the LUST fund that may offer some assistance for utilities or for States.

Mrs. CAPPS. Well, I know there are several lawsuits going on. But to me, if we have a fund that people are paying into from their gasoline costs, every time you fill up your tank you are paying into this fund for the direct purpose of remediating a situation just like we have before us, it would seem to me to be common sense to put those moneys to use.

If the tanks are leaking, who knows what else they are leaking, if we can clearly tell that they are leaking. But I want to talk about one other issue. I don't want to pick on you the whole time either.

Mr. GRUMBLES. Thank you.

Mrs. CAPPS. But I want to make sure that somehow we get the information about how comprehensive this problem is, what is the extent of it. And we need some comprehensive assessments. And, again, if we are talking about drinking water, and here I am from a State where we have asked for a waiver from MTBE. We can purify our gasoline to meet the air requirements without either ethanol or MTBE, and yet we have been denied a waiver because MTBE is the solution that the U.S. Government has set forth. And yet we have hundreds and thousands of problems arising because of it. I think it is time for us to address this with all due haste, and I am wondering what efforts there are in our government agencies to provide the comprehensive assessment of the extent of this problem.

Mr. Miller, if you would.

Mr. MILLER. The study that I mentioned earlier, Congresswoman, that we are collaborating with the American Water Works Association and the Metropolitan Water District of Southern California, that is a random statistical sample, includes almost a thousand community water systems across the country, and it is both groundwater and surface water. That will provide at least a statistical portrayal of the community water systems, large and small, in terms of what we find in MTBE presence.

Mrs. CAPPS. Can you get me an estimate of when that study will be completed?

Mr. MILLER. By the end of this year. It is a 4-year study. We are almost complete now.

Mrs. CAPPS. Excellent. Any other studies going on that you wish to comment on?

Mr. STEPHENSON. I would just suggest that we recommended last year opening up the trust fund to not only more rapid cleanups, but greater inspections. We are concerned that while there is 400,000 reported releases, that there may be many more out there because the States don't inspect their tanks often enough to find such leaks, and even the requirements of putting on equipment to monitor leaks and detect for leaks, if that equipment isn't working properly, as we reported, that is a potential for active tanks to continue to leak. And we estimated there may be up to 200,000 of those. So that is where we were last year. That is where we are this year.

Mrs. CAPPS. Thank you. Mr. Chairman, I know that I have used my time. But if I can just make one statement, that I really feel it is reprehensible that we have a huge surplus of taxpayers' money, of people contributing when they buy their gasoline, setting aside some of that funding to be used for mitigation of problems just as we are addressing today, and that we are salting that money away and we clearly have a problem that we should be doing something about. I think this committee needs to act on this.

Thank you. I yield back.

Mr. GILLMOR. The gentleman from Texas.

Mr. GREEN. Thank you, Mr. Chairman. And let me first ask all three panelists. Mrs. Capps brings up a good point about the amount of contamination, and it seems like from the testimony the average detection is less than 1 part per billion nationwide. Could each of you comment on that? Is that statement correct, that the tests done nationwide, the average is less than 1 part per billion.

Mr. GRUMBLES. Yes, sir.

Mr. GREEN. That is something that all three panelists agree on. California has a standard of more than 5 parts per billion. Is that correct?

Mr. STEPHENSON. I believe it is 13 parts.

Mr. GRUMBLES. 13 for the primary and 5 parts per billion for the secondary standard.

Mr. GREEN. But the EPA standard is 20 to 40 parts per billion?

Mr. GRUMBLES. It is not a standard technically. It is an advisory level.

Mr. GREEN. The advisory then is 20 to 40 parts per billion. So well above, 40 times what the average has been found in the studies; is that correct? If 1 part per billion has been found average and the EPA advisory is 20 to 40, so at least 20 times is the EPA advisory?

Mr. GRUMBLES. Based on what we know right now, the 20 to 40 parts per billion guidance seems to be protective and responsive to the concerns about odor and taste.

Mr. GREEN. Okay. So below that the odor and taste is not detectable?

Mr. GRUMBLES. It is not that it is not detectable, it does not present a problem.

Mr. GREEN. Okay. Let me ask another general question. And I know each of you, although the GAO, it seems like in other panels that we have had in our committee for a number of years, the ban on MTBE, if it was nationwide, and the suggestion by my colleagues, the effect on the gasoline supply, and I have—again

through testimony, and would it affect about 5 percent of our gasoline supplies? Or do you have any idea from the GAO studies or EPA?

Mr. STEPHENSON. I think that reformulated gas is in about 30 percent of all of the gas, and MTBE is the predominant oxygenator in that 30 percent.

Mr. GREEN. So it could be even more than 5 percent of the gasoline that we use in our country?

Mr. STEPHENSON. Probably, if my math is correct.

Mr. GREEN. I know. My wife is an algebra teacher, but I am not. That is why I serve on this committee and not appropriations. So it is well above 5 percent.

Mr. Stephenson, let me ask you, because in your testimony, and in your oral testimony you skipped over a part that I wanted to go back and point out, because in the discussion from some of my colleagues about MTBE being a carcinogen, in your written testimony, and in the middle of the first paragraph, EPA's implementation of the tanks program showed that many tanks have leaked and continue to leak hazardous substances such as MTBE and benzene. These leaks in turn contaminate soil and are imposing health risks. Such health risks include nausea, kidney, liver damage, and even cancer.

In your oral testimony you left out benzene. That is my point. Benzene, toluene, xylene, everything else in gasoline is a known carcinogen; is that correct?

Mr. STEPHENSON. I don't know if that is a known carcinogen, but it is not something, as you put it, you would want in your drinking water.

Mr. GREEN. Well, that is true. But I think, let me ask,—those substances are found by the EPA, I think they are on the list of known carcinogens.

Mr. STEPHENSON. Benzene certainly is.

Mr. GREEN. Okay, benzene. I notice in your written testimony—but like I said, in your oral testimony you just mention MTBE and not benzene. I differentiate between benzene and these other, toluene, xylene—again I don't want to drink because they are known carcinogens—whereas MTBE—and I know this issue has been around for at least 4 years, I have been on the committee 5 now, and we have had similar hearings, and yet we have not gone further than saying that MTBE is a possibility.

In fact, in your testimony, you—the first time I have seen GAO quote the National Science and Technology Council says, MTBE, and concluded the available data has not fully determined the risk—this is on page 7 and 8—MTBE should be regarded as a potential carcinogen risk to humans. Is that—I haven't noticed this testimony in past GAO testimony on their studies.

Mr. STEPHENSON. That is based on other studies. That is not original GAO work.

Mr. GREEN. I know it is based on other studies. It is the first time that I have noticed that GAO has provided this information to the committee. Because I have—you know, I don't know what it does. My colleague from Illinois talks about how in high parts per billion I guess anything could kill someone. But I know benzene,

toluene and xylene would. But so far we do not know that MTBE is a known carcinogen?

Mr. STEPHENSON. That is right. My understanding is there is not enough health-based research yet.

Mr. GREEN. I know I have only been looking at it for 4 years, and we are not scientists, so I hope—I join my colleagues in saying we need to do the studies to look at it. And obviously 4 years is too long.

Mr. GRUMBLES, banning MTBE, do you believe if we substantially improve our drinking water supply around the country, given that the average detections is less than 1 part per billion, if we banned MTBE today, would that substantially improve our drinking water supply, even from your testimony that the average is less than 1 part per billion?

Mr. GRUMBLES. Congressman, I guess the response to that question is if we ban MTBE we certainly are taking one step, a very strong step to address an odor and taste issue. I really am not sure what the position is, if we do have a position, on the banning of MTBE and whether it is a necessary step based on the potential health effects.

Mr. GREEN. Mr. Chairman, are we going to have a second round?

Mr. GILLMOR. Yeah, we will.

Mr. GREEN. Let me say that the banning of MTBE, as suggested by my colleagues, we haven't banned benzene, toluene, or xylene in gasoline, and yet we are talking about banning something that is not a known carcinogen. With that, I will be glad to wait for our second round.

Mr. GILLMOR. Yeah. I do want to get to the second panel. But I know members have some more questions. So we will try to get through those as quickly as we can.

Mr. Stephenson and Mr. Miller, GAO found MTBE contamination in States that did not mandate the use of RFG. What is the explanation and why have the releases been so widespread?

Mr. STEPHENSON. Our understanding, it is both cross-contamination from pipelines and trucks or in a State that might have used MTBE in the past but no longer uses it, or some States still use MTBE in low, very low doses as not an oxygenator, but as an octane enhancer.

Mr. GILLMOR. Okay. And then could you explain or expand on the information GAO received from the States regarding lack of tools and resources for tank inspection and other enforcement responsibilities? Did you find evidence that that situation is improving?

Mr. STEPHENSON. We took a snapshot in time. Unfortunately, that report was issued last year. And we found that many States don't have enough resources to do all of the inspections that EPA would mandate as the minimum to enforce the tank program, and that many times you have turnover at gas stations and you can't keep the folks trained well enough and often cases there were reports of actually turning the equipment off. So we think maintenance and operation of the equipment—while the equipment is a good idea, maintenance and operation is equally important. And if it is allowed to go into disrepair, then essentially you have defeated the purposes of putting the equipment on in the first place.

Mr. GILLMOR. Could you update us on the overall progress that EPA, the States and private entities are making in cleaning up underground storage tanks? I understand that EPA reports that newly discovered releases from tanks are declining, which would seem to make sense as the program matures. What do you think is driving the reduction in releases from tanks and do you expect that to continue?

Mr. STEPHENSON. I think the equipment and the education of the operators has gone a long way toward reducing the leaks. However, as I mentioned, we are concerned that if the tanks aren't being inspected often enough you may not be finding leaks because you are not looking for them. So that is why I keep emphasizing that concern.

Mr. GILLMOR. Mr. Miller, in your view what is the greatest single contributor or source of MTBE contamination in groundwater?

Mr. MILLER. Based on our research, Mr. Congressman, the leaking underground storage tanks are where we find the highest concentrations. But other fuel spills, either through pipeline ruptures, refueling facilities, those also have significant contamination of groundwater as a potential.

Mr. GILLMOR. Thank you very much.

Mr. Pallone.

Mr. PALLONE. Thank you, Mr. Chairman. I wanted to go back to Mr. Grumbles again when I asked about the monitoring of drinking water systems. I know that there is this EPA Blue Ribbon Panel on Oxygenates report that was issued on September 15, 1999. It says, EPA has proposed a revised unregulated contaminant monitoring rule which would require large water systems serving more than 10,000 persons and a representative sample of small and medium-sized water systems serving fewer than 10,000 persons to monitor and report MTBE levels.

This started, I guess, in January of 2001. But under this regulation, the majority of the public—and this is the report—the majority of the public groundwater supply wells will not be monitored for MTBE. The majority, in other words.

So, again, going back, Mr. Grumbles, to what I said before, you know, shouldn't we be requiring monitoring of all drinking water systems, especially those that rely on limited groundwater sources? I mean this report seems to be that—we are not even getting to most of them because of this rule in terms of large versus medium or small.

Mr. GRUMBLES. Well, Congressman, I will double check. But I don't believe we have gotten a lot of the data in from the unregulated contaminant monitoring rule. One of the goals here is to get as much of the data in from the systems that are above 10,000 and also that representative sample below 10,000, and then to assess how much more we need to get a good picture of whether or not to require monitoring.

Mr. PALLONE. Could you get back to us on exactly where that is, what the data shows, where you are in terms of that?

Mr. GRUMBLES. Sure.

**[EPA had failed to respond at the time of printing.]**

Mr. PALLONE. And this Blue Ribbon Panel that I mentioned made a number of recommendations to enhance water protections

from MTBE, and if I could just go through them. They included, or I have selected some here: Seeking to prohibit full delivery to all non-upgraded tanks in every State; developing and implementing an integrated fuel research program into the groundwater behavior of gasoline and MTBE; accelerating testing for and reporting of MTBE in public drinking water supplies at all UST release sites; working with States to enhance their efforts to protect surface waters that serve as drinking water supplies, particularly in regard to older recreational watercraft; working with State and Federal partners to implement and expand programs to protect private water supplies; expanding programs to train and license UST installers and maintenance personnel.

I mean, I can go through these, and you can respond to each of them. But what has been done with regard to these recommendations? Do you want to comment on them? Do you want me to start over again and you go one by one?

Mr. GRUMBLES. I am not going to be able to respond to each one of them. But I think that I would be happy to work with your staff and provide directly to the committee a response to each one of them.

Mr. PALLONE. I would appreciate that, with the indulgence of the chairman, if we could have that. Thank you. But go ahead.

**[EPA had failed to respond at the time of printing.]**

Mr. GRUMBLES. I was going to say, in terms of the results and the recommendations of the blue ribbon panel, that one of the things that—I mean, that has done a variety of things. One is over the last couple of years it has certainly elevated within EPA the importance of looking at pollution prevention, source water protection under existing authorities under the Safe Drinking Water Act. That applies to both groundwater supplies and surface water supplies.

Additionally, it is concepts like that that in knowing of the widespread presence of MTBE at low levels throughout the country, various watersheds in particular, it is one of the things that this administration is looking at as one of the beneficiaries of a watershed initiative through EPA assistance at targeted watersheds to look at a wide range of sources of contamination and trying to have partnerships to prevent that contamination, or to have public and private entities working on that front.

There are several other things. One, based on the blue ribbon panel, I think that also is shared with various offices within EPA, such as the Office of Air and Radiation which is the looking at TSCA as a possible tool to restrict or limit the manufacturing use of MTBE, as something that continues to be looked at very seriously.

In terms of some of the other recommendations, I would just say that in the Office of Water, which is where I work, we are in the process of coordinating with the Office of Research and Development on looking at remediation, better technologies, monitored natural attenuation, learning more about granular activated carbon or air stripping in terms of some of the treatment technologies, but also recognizing that prevention rather than remediation is a preferred approach generally.

Mr. PALLONE. Okay. Thank you.

Mr. GILLMOR. The gentleman from Illinois, Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman. Prevention rather than remediation. You struck a cord, Mr. Grumbles. In your testimony, your written testimony, you indicate that there is emerging evidence that vapor releases from new and upgraded tanks are common, and that such releases can find their way into the groundwater, which is certainly surprising for the normal person. If you are going to have upgraded new tanks, you would think that they would be designed to prohibit any of that.

On what evidence and information is that statement based?

Mr. GRUMBLES. My colleagues from USGS and GAO will, I am sure, add if I am misstating the situation, or anyway to be able to elaborate on it. But some of the data that we have gathered and the studies we have conducted with other partners at the State level as well as the Federal level have indicated that vapor releases occur, because MTBE is—the precise chemical and physical features of it, make it subject to—I mean it may be causing contamination more than just through a leak, but through vapor releases.

Now, I think some of the studies, there is an ongoing study, my notes indicate some new and upgraded tanks in California found only one liquid release, but they found vapor releases at two-thirds of the tank sites. I think this was in Sacramento and Yellow County, California.

Mr. SHIMKUS. That really follows up on my next question to Mr. Stephenson. According to the GAO survey, can you update us on the latest number regarding States that have traced newly discovered leaks or releases from regulated tanks and States that have seldom or never detected such leaks?

Mr. STEPHENSON. Not specifically. I mean, we included that question in our survey and several reported that even upgraded tanks do continue to leak. They still had reports of leaks. But as the chairman pointed out, the number being reported has fallen off greatly, in large part because there has been over a million tanks closed. So a lot of the problematic tanks have been closed. So that may be an explanation.

Mr. SHIMKUS. So you don't think that there is an adequate and full data set that readily supports researching the scientific conclusions about the scope of the new regulated tanks versus the old underground storage tank issue?

Mr. STEPHENSON. I think there is room to look at mandatory tank requirements. I mean, even the minimal equipment that we put on so far, if it is not being operated and maintained properly, is going to not do any good. So you can continue to have leaks. We are finding that even with abandoned tanks, once they dig them up, you can find a contamination problem. My understanding is that MTBE stays in the soil for a very long time.

Mr. SHIMKUS. Let me just, because of my friend from Texas, MTBE evaporation has no effect on the ozone layer, does it?

Just a joke. I yield back my time.

Mr. GILLMOR. The gentleman yields back. The gentlelady from California.

Mrs. CAPPS. Yes. Again, thank you, Mr. Chairman, for calling this hearing on what I would arguably say is one of the more im-

portant topics that we need to have on our agenda here on this subcommittee and in our Committee on Energy and Commerce.

Thinking of the accountability, as more information, more data is gathered, of even small communities like the little town of Cambria, the public becomes knowledgeable about this topic. And I don't want us to be caught asleep at the wheel, to have the means with which to address a problem and then be found holding onto the resources when we shouldn't be. I am eager for us to get to the second panelists because I think they will give us some more practical light on this as well as you folks have.

But if I could follow up, Mr. Grumbles, I was a little taken aback. I asked an initial question of you and you said that wasn't really your expertise, but really it was the Deputy Administrator of Underground Storage Tank Programs. That person is Marianne Horinko, and she is in charge of the budget aspect of that; am I correct?

Mr. GRUMBLES. Well, she as the Assistant Administrator for the Office of Solid Waste and Emergency Response which has authority over the programmatic aspects of the—

Mrs. CAPPS. The LUST fund? I thought this hearing was on that. I am just wondering why she is not here. That was my only question.

Mr. GRUMBLES. I think I was invited to focus primarily on the water contamination issues, and we certainly recognize—I mean this is an example of an issue that is multimedia, bringing together various offices and agencies because it involves groundwater, surface water, different types of programs. But it was my opportunity to be before the committee to try to talk about some of the underground storage issues, but really to focus on my area, and that is some of the activities being carried out under the Safe Drinking Water Act and the overall question of the extent of contamination of MTBE throughout the country of the Nation's water supplies.

Mrs. CAPPS. I yield back.

Mr. GILLMOR. The gentleman from Texas.

Mr. GREEN. Thank you, Mr. Chairman. My colleague from California brought up talking about international data. Have the agencies, EPA, GAO, looked at international data on MTBE? I know in Europe MTBE is fairly prevalent as an additive for clean air problems.

Mr. STEPHENSON. We have not at GAO.

Mr. MILLER. No, sir.

Mr. GREEN. It might be good to look at what another industrialized country is doing and how they are addressing the potential for MTBE contamination, because I assume Europe sometimes has even tougher environmental laws than we do.

Mr. Grumbles, again I will go back to the 1 percent. Since the national detection average for MTBE is less than 1 part per billion, do you believe the health benefits great enough, or the concern great enough to ban MTBE at this time?

Mr. GRUMBLES. Well, Congressman, I would hesitate to make a judgment on that question right now, because we are finding that that is at a low level. What we are concerned about is making sure that we have the most up-to-date information, the research on ex-



actly what the level is that could trigger health effects, adverse health effects.

So I am a little hesitant to make—to state a position since I know there is—I believe there is not an official position of the agency on the banning of MTBE, and I do know that we are very aggressively working to try to get as much data as we can on the inhalation and ingestion components of MTBE and whether it presents a human health risk.

Mr. GREEN. Okay. And my colleague from Illinois talked about the inhalation concern, and it seemed like inhalation would mainly be when I am filling up my car; is that correct? If I am using MTBE as reformulated gasoline, I am inhaling it while I am putting gas in my car?

Mr. GRUMBLES. There could be many other pathways of exposure. If the MTBE is in the water supply and the water is entering into someone's home, there might be routes of exposure, inhalation exposure.

Mr. GREEN. That would be well above the 20 to 40 parts per billion, though, that the EPA has talked about?

Mr. GRUMBLES. I am talking about various routes.

Mr. GREEN. I was just wondering, because I know you are dealing with clean water. But MTBE was designed to help us with clean air. And when we do fill up our vehicles we have—where we catch those vapors now, in most of our updated fueling stations. So whether it is MTBE, benzene, like I said, any of the other—anything else that may be there, if MTBE is phased out—and this is for all. The chairman asked a similar question—other additives will undoubtedly be used to increase octane and reduce air pollution. What are we doing to study these other additives to ensure that they do not have the same or similar problems in the terms of groundwater?

The blue ribbon panel recommended that EPA should conduct a full multimedia assessment of any major new additive to gasoline prior to introduction. What is the EPA doing in this regard now?

Mr. GRUMBLES. If I could, Mr. Chairman, I would like to provide a detailed response on the record in terms of what EPA is doing with respect to research on alternatives to MTBE.

**[EPA had failed to respond at the time of printing.]**

Mr. GREEN. Great. If you could make sure you include ethanol, because it seemed like there was some concern about ethanol and clean air concerns. For instance, what about groundwater contamination from ethanol? Isn't ethanol extremely volatile in groundwater as well? Doesn't ethanol have the same capacity to extend the plumes of other dangerous contaminants such as benzene, toluene, xylene due to the preference of microbes to metabolize in ethanol? Is there or will there be a national monitoring for ethanol in groundwater? Is there a national monitoring?

For example, my colleague, Mr. Ganske, said that they don't use MTBE but they use ethanol in Iowa. Is there a detection? Is anybody detecting ethanol contamination in Iowa?

Mr. GRUMBLES. I personally don't know the answer to that question. But someone in the gallery behind me is saying it is hard to analyze. I can also commit to provide an answer for the record.

**[EPA had failed to respond at the time of printing.]**

Mr. GREEN. Well, I know ethanol also evaporates, because just the properties. But so does MTBE over a longer period of time, if it is surface. But if it is in the groundwater, that evaporation is not available, so we could have ethanol contamination in the groundwater. And so I would appreciate, when you respond to that question, if you all would look at that also.

Mr. GILLMOR. Very good. The gentleman's time has expired.

I do want to thank our panelists for your excellent testimony. And we will move straight to the second panel, because we will want to give as much opportunity to hear from them as possible, because we are being told we may have a series of votes going off here pretty soon. But thank you very much.

Well, I appreciate the second panel coming. I am sorry you had to wait so long until we got to this point. But we will start right out, first with Ms. Patricia Ellis, Hydrologist with Delaware Underground Storage Tank.

**STATEMENTS OF PATRICIA ELLIS, HYDROLOGIST, DELAWARE UNDERGROUND STORAGE TANK; PAMELA R.D. WILLIAMS, EXPONENT; JAMES R. JONES, PRESIDENT, BOARD OF DIRECTORS, SOUTH TAHOE PUBLIC UTILITY DISTRICT; AND CRAIG PERKINS, DIRECTOR OF ENVIRONMENTAL AND PUBLIC WORKS MANAGEMENT, CITY OF SANTA MONICA**

Ms. ELLIS. Good afternoon, Chairman Gillmor and members of the subcommittee. I am Patricia Ellis. I am a hydrologist with Delaware's Underground Storage Tank Program. I am pleased to appear here today on behalf of the National Groundwater Association, which is a nonprofit professional society and trade organization for the groundwater industry that promotes the responsible production, utilization and cleanup of our Nation's groundwater.

Our membership includes both public and private sector groundwater scientists, engineers and hydrologists across the country. I am here today to present an overview of the extent of MTBE groundwater contamination in the U.S., and I present this data as a scientist employed by the State of Delaware as well as my experiences as having been one of the blue ribbon panelists.

The Federal Reformulated Gasoline Program was established in the Clean Air Act of 1990, and it was meant to provide reductions in the emissions of air pollutants from motor vehicles. The importance to us is in dealing with MTBE contamination in groundwater, and there are three main aspects.

First, MTBE is highly water soluble, and it absorbs less on soils, which means it tends to migrate faster and farther than any of the other components of gasoline.

Second, while the health risks are still being debated due to MTBE, contamination at low levels does cause taste and odor problems and can render the water undrinkable.

And last, I am looking at the large number of studies demonstrating that the water systems are being impacted by MTBE.

By 1998, MTBE had become the fourth highest produced organic chemical in the United States. And you will see the impact of contamination when we hear from South Lake Tahoe, which was forced to shut down about half of their water supply wells due to

impacts or imminent threats to their wells, and they are facing clean-up costs of about \$50 million.

But there is also a growing number of studies that demonstrate on a local and regional scale the extent of MTBE contamination. One of the USGS studies looked at shallow monitoring wells in newly developed areas of Boston. This is not in the metropolitan—it was out in the newly developed residential area, not in the city center. And they looked at sand and gravel aquifers and found MTBE in 52 percent of the wells that they looked at.

Another study that we have heard brief mention of looked at existing data in public water systems in the Northeast and Mid-Atlantic States. They looked at about 20 percent of the community systems and found MTBE in detectable quantities in 8.9 percent of those, and 1 percent of those exceeded the 20 part per billion lower limit of EPA's drinking water advisory.

A more recent study has just come out, and it was done as part of the NAWQA, or National Ambient Water Quality Assessment program, of USGS. They collected studies in Delaware between August and November 2000 from 30 randomly selected drinking water supply wells that were screened in the unconfined aquifer, and they were trying to assess the currents and distribution of pesticides, volatile organic compounds, other inorganic ions, and nutrients. They found volatile organic compounds in all 30 wells, generally at less than a part per billion. The big three were chloroform, tetrachloroethane, and MTBE, most frequently detected, and they were found in at least half of the samples. Seventeen of the 30 samples had MTBE. Six of these were between 1 and 10 parts per billion, and one was over our newly established 10 part per billion drinking water standard for MTBE, which became effective on May 10, which I believe is the lowest in the country.

We can't always blame tanks. In 1998, a car accident in Maine resulted in the spill of less than 20 gallons of gasoline, which would be maybe two gallons of MTBE. The incident resulted in contamination of 24 domestic wells located within 2,200 feet of the spill and 10 of those wells exceeded 100 parts per billion.

In response to this and several other incidents that happened at about the same time, the Governor of Maine directed State and local—State health and environmental agencies to look at all of the drinking water supplies in Maine. They sampled about a thousand private wells and almost all of their regulated public water supplies. MTBE was found in 16 percent of the private water supplies, about 1 percent exceeding their State standard of 35 parts per billion. And the questionnaire that accompanied the survey found that the wells were not necessarily anywhere near underground storage tanks or gasoline tanks or any known gasoline spills. MTBE was also detected in 16 percent of the public water supplies, but none exceeded their 35 part per billion standard.

Pascoag, Rhode Island is a village in northwest Rhode Island. Their water supply came from a wellfield that served about 4,000 people. And they had recently added an additional well to their wellfield, which when first tested contained no MTBE last spring. After that initial testing, the MTBE levels began to rise and it began a 5-month ordeal for this town. On Labor Day a multiagency response started to try to find out where the problem was. It was

eventually traced to a gas station about 1,700 feet from the wellfield. They initiated an enforcement action and an investigation got started and limited targeted remediation began. By the end of October, the contamination had climbed to 1,700 parts per billion. The Rhode Island Department of Health issued advisories. First, don't drink the water, don't cook with the water, and don't let your small children bathe in the water. A little later they also added other advisories: To limit your showering time; to open the windows to ventilate to keep the exposure to vapors reduced; and to reduce the overall usage of water to minimize the amount of pumping that was drawing on those wells which would draw MTBE into the wellfield more.

By November the operators of the station had filed for bankruptcy. By mid-November, they got carbon filters on the water system. That did reduce the contamination to between 40 and 100 parts per billion. An adjoining town, Harrisville, had been planning to install a new wellfield about 2 years down the line. They accelerated the installation of their new wellfield. After a few disputes over how you merge two water districts, clean drinking water began reaching the residents in January, mid-January this year. And they are still looking at determining the cause of the release, and they are working on remediation in the source area. But the contamination in this town has been a very public issue and seriously impacted all of the people who lived in that area.

Another hot spot was in New York. The Greenbush area in Hyde Park has had as of last August 77 homes that have carbon filters on their wells, and a total of 123 wells so far that have been impacted. Three or four different gas stations were the sources of this contamination, and some of the contamination of MTBE was known about as long as 15 years ago. The New York Department of Environmental Conservation is planning on contributing \$1.9 million toward the \$3.1 million cost of bringing in water from Poughkeepsie.

Another hot spot recently was Montgomery County area in Pennsylvania. I will detail one of sites in a little more detail. It was a gasoline station in the town of Bluebell reported a release in May 1998, 2 days after an explosion of a nearby building. They reported a release of a few gallons, 1 to 2 gallons, he said. But it turned out to be a leak of about 13,000 gallons that resulted in the explosion nearby and evacuation of a number of families from their homes due to vapors. Fourteen families have had to be connected to public water because their wells were contaminated. And it was a faulty leak detection device that failed to alert the operator. They anticipate cleanup is going to cost about \$5 million, and it will come from a State fund since the operator really has no assets.

Mr. GILLMOR. Ms. Ellis, we are going to have to take a recess now. We have 6½ minutes to make this vote. We have a total of 7 votes. And although they shorten some of those votes up, we are realistically looking at almost an hour before we get back here.

So, Mr. Pallone and I and hopefully some others will be back as soon as the votes are terminated, and so I guess you are free for about an hour. Thank you very much.

[Brief recess.]

Mr. GILLMOR. The committee will come to order. I very much appreciate your patience. Apologize for the delay. It was all Mr. Pallone's fault. It was beyond the control of any of us. We were—Ms. Ellis was wrapping up her statement. So if you want to finish then we will move to the other members of the panel.

Ms. ELLIS. I will pick up where I stopped off. To continue a little bit on the impacts in New Hampshire, 16 percent of the public water supplies had MTBE detected and 27 percent of the private supplies that were tested. New Jersey, 15 percent of the wells had detectable MTBE. And in the northern area called the Highlands area had up to 43 percent detections. Around an area called Cranberry Lake which is heavily used for boating, there are a lot of private wells surrounding the lake that draw water from the lake, 93 percent of them had MTBE in them.

We heard mentioned the unregulated contaminant monitoring rule that started in January 2001 that requires sampling of the larger systems. The State of Delaware has five larger systems that are year round, two more that serve over 10,000 people in the summertime. I am told that we require also a representative sample of the smaller systems. Well, we have 575 smaller systems in the State of Delaware. And the representative statistical sampling I was told we need to do was one of those systems. If you hit the one with MTBE, maybe we have got a bad problem. If you happen to miss it, I guess we have no problem. But there are 575 small systems in the State of Delaware.

When public health started sampling in June 2000, of the first 210 samples they collected, 38 had MTBE in them, which is 18 percent detection, and two of them exceeded our recently enacted drinking water standard of 10 parts per billion.

Last summer, the Department of Natural Resources and Public Health tried a different sampling protocol. They sampled all of the shallow drinking water wells within a mile radius of hazardous substance sites. This is the State level Superfund sites. Of these shallow wells, we have about 400 shallow public drinking water supply wells that are unconfined and at risk. They sampled 39 wells and four surface water intakes, both raw and treated water. They did 58 samples. From my notes you can see they analyzed for almost 200 and some different substances. MTBE and chloroform tied for first place with 21 detects out of these 58 samplings. And MTBE was the only thing that triggered either an EPA drinking water standard, which doesn't exist, or the Delaware standard. We had 12 and 16 parts per billion and one of those jumped up immediately to 30.

Normally, domestic wells are not sampled in many States. The only ones we bother doing are the ones that are near LUST sites because they are part of the investigation. But where we have sampled we have turned up about 60 domestic wells that have MTBE impacts. The earliest one we discovered was in 1989, well before we were using RFG in the state.

We have had hits as deep as 260 feet for the depth of a well that has been impacted by MTBE, although most of these have been less than 50 feet. We have got two individual LUST sites that have managed to impact between 15 and 18 domestic wells.

Normally our first response is get the carbon filters out there that day. We are doing it now at about 5 parts per billion. Then we will monitor for a while, decide whether to put in a deeper replacement well, or try to extend a water line. We will spend \$3,000 to \$5,000 a year for every site where we have carbon filters, more if it is at higher levels of contamination. If we drill a deeper replacement well that is 200 or 300 feet deep, that is going to cost us \$8,000 to \$10,000.

We recently ran a water line about 1,000 feet because of two impacted wells that had five different connections, houses and business to it, and the State, out of our money, paid \$450,000 for that. It was quite an expense.

As more studies are completed across our State and the rest of the Nation we are getting a handle on the extent of the problem. We have further concerns as the 1998 deadline we were told would take care of everything. "1998 compliant tanks could not leak," and they do. We see it every day. We have trouble separating out why they leak. We don't know if it is in the design, the construction, or the poor training that is really hard to identify what the problem is that is causing the leaks.

I do commend the panel for taking time to evaluate and focus on the extent of contamination for our water supplies in this country. I would be happy to respond to any questions you might have.

[The prepared statement of Patricia Ellis follows:]

PREPARED STATEMENT OF PATRICIA ELLIS, DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL, ON BEHALF OF THE NATIONAL GROUND WATER ASSOCIATION

Good afternoon Chairman Gillmor and members of the Subcommittee, I am Patricia Ellis, a hydrologist with Delaware's Department of Natural Resources and Environmental Control, Underground Storage Tank Branch. I am pleased to appear today on behalf of the National Ground Water Association, a non-profit professional society and trade association for the ground water industry that promotes the responsible protection, utilization and cleanup of our nation's ground water. Our membership includes both public and private sector ground water scientists, engineers, and hydrologists across the country.

I am here today to present an overview of the extent of MTBE (methyl tertiary butyl ether) ground water contamination in the United States. I present this data as scientist employed by the State of Delaware as well as my experience from being a member of the EPA's Blue Ribbon Panel on MTBE.

BACKGROUND

The Federal Reformulated Gasoline Program was established in the Clean Air Act of 1990 as a means to provide reductions in the emissions of air pollutants from motor vehicles. The importance of dealing with MTBE contamination is three-fold. First, the fact that MTBE is highly water-soluble and absorbs less on soils, relative to other components of gasoline means that following a spill or leak it tends to migrate faster and further than other components of gasoline. Secondly, while health risks due to MTBE water contamination are still being investigated, contamination at low levels does cause taste and odor problems thus rendering the water undrinkable. And lastly, the number of studies demonstrating that water systems are currently impacted by MTBE.

By 1998 MTBE had become the 4th highest organic chemical produced in the United States. The impact of contamination becomes clear when one looks at the situation in South Lake Tahoe, California, which was forced to shut down more than half of its supply wells due to impacts or imminent impacts to its wells and is facing cleanup costs estimated around \$50 million.

There are also a growing number of studies that demonstrate the local and regional scale of MTBE contamination. For example, one USGS study looked at shallow monitoring wells in newly developed areas of the Boston, Massachusetts metropolitan area which has sand and gravel aquifers and found MTBE in 52% of the

wells. Another USGS study evaluated the occurrence and distribution of MTBE in drinking water in northeast and Mid-Atlantic States that involved the collection of existing information from 20% of community water systems in the area. MTBE was found in detectable quantities in 8.9% of the samples with 1% exceeding 20 ppb (the lower limit of EPA's drinking water advisory). The USGS, as part of the NAWQA (National Ambient Water Quality Assessment) Program collected samples between August and November 2000 from 30 randomly selected drinking water supply wells screened in the unconfined aquifer to assess occurrence and distribution of selected pesticides, volatile organic compounds, major inorganic ions, and nutrients. Volatile organic chemicals were present in all wells, generally at less than 1 microgram/liter (roughly <1 ppb). Chloroform, tetrachloroethene and MTBE were most frequently detected VOCs, and were found in at least half of the samples. 17 of 30 samples had MTBE detected. 6 samples were between 1 and 10 ppb, 1 sample above the 10 ppb drinking water standard.

#### EXAMPLES OF MTBE CONTAMINATION ACROSS THE U.S.

In 1998, a car accident in Maine resulted in a spill of less than 20 gallons of gasoline, or less than 2 gallons of MTBE. The incident resulted in the contamination of 24 domestic wells located within 2200 feet of the spill. Ten of the wells exceeded 100 ppb. In response to this and several other incidents, the Governor of Maine directed state health and environmental agencies to undertake a study of the occurrence and concentrations of MTBE in Maine's drinking water supplies by sampling 1000 private wells and nearly all regulated public water supplies. MTBE was detected in 16% of the private water supplies, with slightly more than 1% exceeding the state drinking water standard of 35 ppb. The questionnaire that accompanied the survey found that the wells were not necessarily located near gasoline storage tanks or known gasoline spills. MTBE was detected in 16% of the public water supplies tested, but no samples exceeded the 35 ppb.

Pascoag, Rhode Island is a village on northwest Rhode Island. Pascoag's water supply came from a well field that served about 4000 people. They had added an additional well in the spring of 2001, and when first tested, the well contained no MTBE. After initial testing MTBE levels began and signaled the beginning of a five-month ordeal for the residents of the village. On Labor Day weekend, a multiagency response began. The release was traced to a gas station about 1700 feet from the well field. In response to an enforcement action by the state, an investigation was initiated, and limited targeted remediation began. By the end of October, concentrations had risen to about 1700 ppb. The Rhode Island Department of Health issued advisories asking residents to limit showering time, ventilate to reduce exposure to MTBE vapors, and reduce overall water use to minimize the pumping of the wells, which was drawing MTBE to the well field. By November, the station operators had filed for bankruptcy. In mid-November, carbon filters were installed on the water system, which reduced contamination to between 40 and 100 ppb. An adjoining town, Harrisville, that had been planning a new well field has provided a long-term solution. They accelerated installation of the new well field and after initial disputes as to the administration of the two water districts, clean drinking water began reaching residents on January 19th. The investigation to determine the cause of release continues and remediation in the source area is progressing. The contamination of the Pascoag well field has been a very public issue that seriously impacted all the people who live and work in Pascoag.

The Greenbush area of Hyde Park, New York is another area impacted by MTBE contamination. As of last August, the neighborhood had 77 homes with carbon filters on wells, and at least 123 wells had been impacted. Three or four gas stations were identified sources of the contamination. Contamination was detected as much as 15 years ago at some of the sites. The New York Department of Environmental Conservation will contribute \$1.9 million of the cost toward the town's \$3.1 million system to bring water from Poughkeepsie.

Bucks and Montgomery Counties, Pennsylvania, have also been dealing with MTBE contamination of their water resources. A gasoline station in the town of Blue reported a release in May 1998 two days after an explosion occurred at a nearby building. The reported release of a "few gallons," turned out to be a leak of as much as 13,000 gallons, which resulted in the explosion, and evacuation of several families from their homes due to gasoline vapors. Fourteen families have been connected to public water because their wells were contaminated. A faulty leak detection device failed to alert the operator about the release. Cleanup is expected to cost \$5 million, which will likely come from a state fund, since the operator has no assets. .

In New Hampshire, slightly over 16% of public water supplies have MTBE at 0.5 ppb or higher. Of the private water supplies sampled, 27% had MTBE detected.

In New Jersey, 15% of community water systems had detectable MTBE (>0.5 ppb), in one area in the northern part of the state, up to 43% of the domestic wells had detectable MTBE. MTBE has been detected in 93% of private wells in Cranberry Lake area where gasoline-powered boats are used, and the wells draw their water from the lake.

Beginning in January 2001, the EPA Office of Drinking Water, as part of the Unregulated Contaminant Monitoring Rule, now requires that public water supplies serving more than 10,000 people include MTBE sampling. This sampling is to collect information on occurrence of MTBE in drinking water, to determine whether the problem is serious enough to warrant developing a drinking water standard. They also require sampling of a "representative number" of small systems (serving <10,000 people) which is crucial in gaining a complete picture of MTBE contamination. For example, Delaware has 5 systems serving more than 10,000 people year-round, while approximately 575 systems serve less than 10,000 people. When the State of Delaware started testing for MTBE in June 2000, of the 210 samples collected in the first few months of testing, 38 samples or 18% had detections of MTBE, two exceeded the 10 ppb Delaware MTBE drinking water standard that became official on May 10, 2002.

Last summer and early fall, the Delaware Department of Natural Resources and Environmental Control and Public Health sampled public wells and surface water intakes within a 1-mile radius of known hazardous waste sites in unconfined aquifers. Delaware has over 400 public drinking water supply wells that are screened in unconfined parts of the shallow aquifer alone. 39 wells and 4 surface water intakes were sampled, both raw and treated water, for a total of 58 samples. The samples were analyzed for 69 regulated chemicals, 10 chemicals with secondary standards, and 108 other chemicals. Of the 58 samples, MTBE and chloroform were detected in 21 samples. MTBE was the only chemical that exceeded a Delaware or EPA maximum contaminant level (MCL). These included two wells with MTBE at 12 and 16 ppb, and one of those wells has more recently increased to 30 ppb.

In Delaware, as in most other states, domestic wells are normally only sampled for MTBE near Leaking Underground Storage Tanks (LUST) sites, where potential for impact is suspected. Approximately 60 domestic wells have been impacted, with the earliest discovered in 1989, well before reformulated gasoline was used. Wells screened as deep as 260 feet have had detects for MTBE, although most wells impacted were shallower than 50 feet. Two LUST sites have impacted 15-18 wells each. When a well is impacted, the first response is normally carbon filters on the well, monitoring, followed by deep replacement well, or extension of a waterline. It costs from \$3000-\$5000/well/year for filters, and \$8-10,000 to drill deeper replacement well. We recently extended a water line approximately 1000 feet, due to two impacted wells that served 5 connections. The cost was \$450,000. Initially, a deeper well was drilled to replace one well, but the ground water at 100 feet also contained MTBE.

As more studies on MTBE contamination are being completed across the nation the extent of the problem is becoming fairly well known. Further concerns are being raised by indications that upgraded tanks that meet the 1998 standards are still leaking. Although there is difficulty in separating problems with design and construction of underground storage tank systems from operator errors or lack of training this issue still needs to be addressed.

I commend the Subcommittee for taking the time to evaluate and focus on the extent of MTBE contamination in our nation's water supplies. I would be happy to respond to any questions you might have regarding my testimony.

#### References

Occurrence and Distribution of Methyl tert-Butyl Ether and Other Volatile Organic Compounds in the Northeast and Mid-Atlantic Regions of the United States (1993-1998). US Geological Survey Water Resources Investigation 00-4228.

Occurrence and Distribution of Selected Contaminants in Public Drinking-Water Supplies in the Surficial Aquifer in Delaware. USGS Open-File Report 00-327.

Source Drinking Water for Selected Public Drinking Water System: Report of Findings. May 2002. Department of Natural Resources and Environmental Control and Department of Health and Human Services.

Mr. GILLMOR. Thank you very much. We will go to Dr. Williams.



**STATEMENT OF PAMELA WILLIAMS**

Ms. WILLIAMS. Good afternoon, Mr. Chairman and members of the subcommittee. I am a senior scientist with Exponent, which is a consulting firm headquartered in Menlo Park, California. I would like to thank you for the opportunity to present some of my research findings related to MTBE in drinking water, particularly in the State of California. And most of this research has been published in the literature as well as presented at various technical conferences over the last few years.

The first issue that I would like to address relates to the common perception that MTBE contamination of drinking water supplies is widespread and growing. A review of the available water monitoring data in California, however, does not support these claims and, in fact, of all the public drinking water supplies that have been monitored for and reported for MTBE, only about 1 percent or less of all of those sources have been found to contain MTBE at any level over the last 6 years.

In addition, contrary to some of the projections that were made a couple of years ago, MTBE detections have not increased over time and, in fact, the number of new sources that have been found to contain MTBE has actually decreased in recent years. And this is most likely a result of the new tank upgrade program that has been implemented in California as well as the ban on two-stroke engines in certain waterways.

As noted earlier today and in previous testimony by USGS, even when MTBE is detected, it tends to be found at very low concentration levels, and these are levels that are typically below California's secondary and primary standards for MTBE, both of which, I might add, are very conservative estimates to begin with and are far below the U.S. EPA's advisory level of 20 to 40 parts per billion.

I have a background in public health and what I find to be of even greater interest is the finding that other chemicals, such as TCE and PCE tend to be found more often and at greater concentration levels than MTBE in California's drinking water. I think that these findings help to illustrate how our current focus and energy directed toward MTBE may be misguided if our real intent here is to protect public health and the environment and reduce risks.

The second issue that I would like to comment on relates to the frequent misrepresentation of MTBE as a human carcinogen. In reality, there is no national or international regulatory body or agency that has classified MTBE as a human carcinogen. Furthermore, the U.S. EPA states that its advisory level for MTBE is about 100,000 times below exposure levels found to cause any adverse effect in animals.

I think it is, therefore, very unlikely that MTBE, at current environmental exposure levels, would cause any risk to public health.

The final issue that I would like to discuss relates to the risks and benefits of MTBE. While the risks—while the perceived risks of MTBE, such as significant and widespread water contamination, are not supported by the current available data, the benefits of MTBE and, I mean, in particular the air quality benefits, have been well documented.

On the other hand, very little is known about the alternatives to MTBE such as ethanol, which may end up resulting in greater risks to human health or the environment.

It will ultimately be up to decisionmakers, such as yourselves, to weigh the risks and benefits of MTBE as well as for the alternative to ensure the greatest benefits and the fewest risks to society.

In closing, although MTBE has certainly impacted some drinking water sources in California, the most notable being those in Santa Monica and South Lake Tahoe, the productions about widespread and high-level contamination of MTBE have just not materialized. The risks and benefits of MTBE need to be evaluated in a fair, comprehensive and quantitative manner, and the risks and benefits of the alternative need to undergo the same thoroughness and scientific scrutiny as that for MTBE. I thank you for your time and I will take any questions.

[The prepared statement of Pamela Williams follows:]

PREPARED STATEMENT OF PAMELA WILLIAMS, SENIOR SCIENTIST, EXPONENT

Thank you Mr. Chairman and Members of the Subcommittee for the invitation to appear here today. I appreciate the opportunity to discuss the impact of MTBE on drinking water supplies, particularly in California, and the potential threat to public health from exposure to MTBE in drinking water. Over the past few years, I have conducted extensive research on MTBE and other volatile organic compounds (VOCs). I have presented my findings in approximately 7 published manuscripts and 12 presentations at various conferences nationwide. During this period, I have found that much misinformation has been circulated, and many misperceptions exist, about MTBE. I hope to help clarify some of these issues for you in my testimony today.

MTBE IN DRINKING WATER

A common perception is that there is widespread contamination of drinking water supplies in the U.S. due to MTBE, particularly in California, and that the degree of contamination is increasing over time. It is also believed that ground water sources are at greater risk of MTBE contamination than surface water sources. Analysis of the available drinking water data, however, does not support these claims. In fact, MTBE was detected in 1% or less of all sampled drinking water sources in California from 1996 to 2001, and MTBE was detected approximately 5 to 10 times more often in surface water sources than ground water sources during this period. Furthermore, detections of MTBE in California surface water sources decreased by about 50% from 1998 to 2001, most likely due to a ban on the use of two-stroke engines in selected surface water bodies. Contrary to prior claims and projections, detections of MTBE in California drinking water have not increased over time, and the annual rate of new MTBE detections has actually decreased in recent years for both ground water and surface water sources (likely due to the implementation of a new underground tank program in California and the ban on two-stroke engines).

Even when MTBE is detected in drinking water, the concentrations are typically very low. For example, approximately 87% of detected MTBE concentrations were below California's primary (health-based) standard of 13 parts per billion (ppb), and about 72% were below the State secondary (aesthetic-based) standard of 5 ppb from 1995 to 2001.<sup>1</sup> The average concentration of MTBE detected in California drinking water sources was less than 8 ppb from 1997 to 2001. The average concentration of MTBE in water sources where it was detected was higher before 1997; the average was made higher due to the sampling of the Arcadia and Charnock wells in Santa Monica, which had been affected by a nearby leaking underground storage tank. It should be noted that California's drinking water standards are very conservative, and the secondary standard in particular is 4 to 8—times lower than the USEPA advisory level of 20-40 ppb, which is based on taste and odor effects. These

<sup>1</sup> Maximum contaminant levels (MCLs) are enforceable and represent the maximum permissible level of a contaminant in water delivered to users of a public water system. In California, the primary MCL (13 ppb) was established to be protective of cancer effects, while the secondary MCL (5 ppb) was established to address taste and odor concerns

findings suggest that current levels of MTBE in drinking water are unlikely to pose a health or, in most cases, even an aesthetic concern. In our own independent analyses, we have found that current levels of MTBE in California drinking water pose a negligible health risk to water consumers.

According to recent statements made by the U.S. Geological Survey, similar findings for MTBE have been observed in other regions (see *Statement by Robert M. Hirsh to the House Committee on Energy and Commerce on November 1, 2001*). Specifically, various national assessments by USGS have indicated that MTBE levels do not appear to be increasing over time, that MTBE is typically present at very low concentrations in shallow ground water within areas where MTBE is used, and that MTBE levels are almost always below those of concern from aesthetic and public health standpoints. Recent findings from USGS, based on an evaluation of 954 randomly selected community water systems nationwide, also found that the median concentration of MTBE detected was only 0.54 ppb.

Perhaps of greater interest is that, besides MTBE, many other VOCs have been detected in California's drinking water. For example, chloroform, tetrachloroethylene (PCE), and trichloroethylene (TCE) were found in approximately 10-14% of sampled drinking water sources in California from 1996 to 2001. In addition, many of the drinking water sources in which PCE and TCE were detected (i.e., about 18-22% of sources from 1995 to 2001) had concentrations that exceeded California's primary standard of 5 ppb for these chemicals. These findings suggest that the intense efforts to regulate or decrease exposures to certain chemicals, such as MTBE, may be misguided from a public health perspective, given the presence of other chemicals in drinking water that may pose a greater risk.

#### TOXICITY OF MTBE

Another common perception—one that is often fueled by the media—is that MTBE is a human carcinogen. This belief stems from reports that MTBE has been found to be carcinogenic to laboratory animals at very high doses. However, these animal studies have several important limitations with respect to understanding the carcinogenic potential of MTBE in humans, and do not provide any clear evidence of human cancer potential. In fact, no national or international regulatory agency has classified MTBE as a known human carcinogen. Although few national (or international) regulatory guidelines exist for MTBE, the USEPA believes that its aesthetic standard (20-40 ppb) is at least 20,000 to 100,000 (or more) times lower than the range of exposure levels in which cancer or non-cancer effects have been observed in rodent tests.

In California, the Office of Environmental Health Hazard Assessment (OEHHA) considers MTBE to be an animal carcinogen and a possible human carcinogen. OEHHA is the only state or national agency in the country that has derived a cancer potency value for MTBE. A comparison of their value for MTBE with those for benzene, TCE, and PCE indicates that OEHHA considers the latter three to be about 5 to 50 times more potent than MTBE (when considering oral exposures).<sup>2</sup> Several aspects of OEHHA's approach for evaluating MTBE's cancer potential in humans have been criticized, including their use of unvalidated non-human models and reliance on animal tumor data that may not be relevant to humans.

In short, the USEPA has not conducted a cancer risk assessment for MTBE. The analysis by OEHHA, which is very controversial, is the only one that is currently available.

#### RISKS AND BENEFITS OF MTBE

Despite perceptions to the contrary, developing and using any material or technology entails some degree of risk. Decision makers are therefore faced with the challenge of a "risk/benefit balancing act," in which they must decide whether the benefits achieved by a particular technology or material are greater than the associated risks. The risks and benefits of *alternative* technologies or materials must also be evaluated, with the same level of thoroughness, to ensure that decisions ultimately provide the greatest benefits (and fewest risks) to society.

In the case of MTBE, the tradeoff is clearly between air quality benefits and potential threats to water quality. While the air quality benefits of gasoline containing MTBE have been documented in California and elsewhere, claims of widespread MTBE contamination of drinking water supplies have not been proven. In addition,

<sup>2</sup>Cancer potencies (often expressed as a cancer slope factor or CSF) are defined as an upper bound, approximating a 95% confidence limit, on the increased cancer risk from a lifetime exposure to an agent. OEHHA's CSF for MTBE is 1.8 (mg/kg-day)<sup>-1</sup>. OEHHA's CSFs for benzene, TCE, and PCE are 100, 21, and 10 (mg/kg-day)<sup>-1</sup>, respectively.

preliminary data suggest that alternatives to MTBE, such as ethanol, may result in increased health risks to the public, while providing few additional benefits. Of particular concern is the potential for increased air emissions and greater water contamination by other gasoline constituents (e.g., benzene) if ethanol is substituted for MTBE. Other life-cycle impacts may occur from the production and transportation of alternative fuels.

#### CONCLUDING COMMENTS

The decision about whether or not to ban or diminish the use of MTBE, or to require a specific replacement for MTBE, requires the consideration of many factors. Although public perceptions are certainly important to policy makers, decisions about whether a chemical poses a significant threat to human health or the environment should be based on a review of the scientific data.

MTBE has clearly impacted a few drinking water sources in the U.S. (most notably the Santa Monica wells in the mid-1990's), and these incidents have raised legitimate concerns about the longer-term use of this oxygenate in gasoline. However, the assertion that there is widespread or growing contamination of MTBE in drinking is not supported by either historical or more recent drinking water data. In most cases, detected concentrations of MTBE are also significantly below the USEPA advisory level for MTBE. The benefits from banning or diminishing the use of MTBE are therefore likely to be inconsequential in terms of reducing human exposures or health risk, particularly when evaluated in the broader context of other drinking water contaminants. A more comprehensive (life-cycle) analysis of alternative oxygenates or fuels is required to better inform decision makers about the potential risks, costs, and benefits of these alternatives.

I hope that the information I have presented here today helps clarify some of the common misperceptions and factual data about MTBE. Again, I appreciate the opportunity to testify about my knowledge and research on MTBE. I would be pleased to respond to any questions that you may have.

Mr. GILLMOR. Thank you very much, Dr. Williams.  
Mr. Jones.

#### STATEMENT OF JAMES R. JONES

Mr. JONES. Thank you. Mr. Chairman and members of the subcommittee, I am James R. Jones, President of the Board of Directors in South Tahoe Public Utility District. On behalf the District, I am honored to be here today to address one of the most serious drinking water challenges that we have encountered in recent memory: The MTBE contamination. I will summarize my remarks and request that my written statement be included in the record.

The District provides regional waste water treatment and supplies domestic water to the South Shore of Lake Tahoe. We serve approximately 17,000 permanent residents and more than 1.8 million citizens who visit the Tahoe region annually. Our source of drinking water is exclusively from the groundwater aquifer in that area.

H.R. 4, section 504 as passed by the House, authorizes the U.S. EPA administrator to use \$200 million of the Leaking Underground Storage Trust fund revenues to respond to the MTBE-related needs. Similarly, the Senate passed version of H.R. 4 contains authority to conduct inspections, actions against violators of the underground storage tank program. The Committee, the House, and the Senate are to be commended for this action. I especially want to recognize the efforts of Representative Capps and Waxman and our Congressman John Doolittle.

It is a good start. However, the costs associated with the MTBE cleanup are tremendous. Assessments, corrective actions and inspections are an important tool to prevent further contamination. We need to do more for the communities that today are suffering

the consequences of MTBE. The LUST trust must be used to its maximum, including providing clean-up assistance to communities.

I want to draw your attention to a number of important points. First, MTBE contamination is a potential health issue. Once contamination occurs, the potential for health consequences of ingesting MTBE may exist for a long periods because of the MTBE's slow breakdown in the groundwater aquifer.

Second, MTBE contamination is a consumer confidence issue. The turpentine-like quality of the contamination makes drinking water impossible even at low—to drink even at the low concentrations, very low concentrations. Third, the MTBE contamination is a technological challenge. One of the biggest problems we have experienced is responding to this contamination. Quite simply it is difficult and expensive to remove MTBE from the water supply. The contamination will remain in our water supply for decades.

Fourth, the use of MTBE, we believe, was an ill-advised decision that has potentially created tens of billions of dollars of cleanup needed across the country that could have been avoided. It is important that we do not ask the innocent ratepayers to pay for the cost of this cleanup.

Since 1997, 15 of our wells have been shut down or suffered limited pumping to contain the contamination. This translates to over a third of our wells. As a result of this situation, in 1998, the District filed a lawsuit in San Francisco Superior Court against 31 defendants. To this date, the District has settled with 26 of the defendants for approximately—this is settled out of court, with 26 of the defendants for approximately \$34 million. This action was taken to recover the costs incurred to the water system as a result of the MTBE.

How did this happen? The origin of the contamination was from 14 different gas stations of the 17 we have in our community. Our area's geography is a confined basin with high groundwater aquifers and poor soils that are highly susceptible to the fast moving MTBE.

When the District sought assistance, the very State and local agencies that were charged with protecting the public health and environment were slow to react to our problem. The responsible parties refused to lend a hand and the regulators informed us that there were no programs or resources available to address the situation. The District was forced to initiate the lawsuit to address our needs.

The suit found that the MTBE—the suit found that the industry knew that MTBE would reach groundwater, pollute public water supplies and threaten the public health. We learned a number of things about MTBE. Once the MTBE enters the environment, there is no easy solution to respond to the impaired water supply. The solution is expensive from a treatment as well as a staff resource perspective. You need to respond without delay to reduce the spread of that MTBE plume.

How can we avoid creating future MTBE situations? First, avoid any effort to provide refiners and distributors of MTBE or other fuel additives liability protection. Our experience demonstrates that the consequences of using MTBE were well-known. The decision to proceed armed with the knowledge should never be re-

warded with a get-out-of-jail free card. Simply stated, water agencies should have the freedom to secure remedies from the responsible parties.

Second, the current regulatory program governing underground storage tanks fails to address the problems that have contributed to the crisis. The program should be reformed to provide meaningful, financial and technical support to the communities.

Third, spend the money. The current appropriation request for the LUST fund program is \$73 million. The trust fund has now more than \$1.7 billion in receipts. If ever there was a time that we should use our resources, it is now. I urge you to work with your colleagues on the committee on appropriations to leverage the trust fund to its maximum potential.

In closing, the District believes that a mix of aggressive enforcement, Federal cleanup assistance and an effective regulatory program that alerts the communities to potential problems before they get out of control we can avoid the serious public health and environmental threat that our district has had to address.

Again, thank you for the privilege to appear here today. I look forward to responding to any of your questions.

[The prepared statement of James R. Jones follows:]

PREPARED STATEMENT OF JAMES R. JONES, MEMBER, BOARD OF DIRECTORS, SOUTH  
TAHOE PUBLIC UTILITY DISTRICT

Mr. Chairman, members of the Subcommittee, I am James R. Jones, a Director of the Board of Directors of the South Tahoe Public Utility District (District). On behalf of the District, I am honored to be here today to address one of the most serious drinking water quality challenges that we, as public officials, have had to encounter in recent memory—MTBE contamination.

I also appear before you today as a former U.S. Environmental Protection Agency and U.S. Bureau of Reclamation employee. My educational training is as a Professional Civil Engineer. And in the instance of MTBE, former California Governor Pete Wilson appointed me to sit on the Advisory Panel on Leaking Underground Fuel Tanks and MTBE.

As background, the District provides regional water treatment and supply and wastewater treatment services. Our service area comprises the Counties of Alpine and El Dorado, California covering more than 380 square miles. We serve approximately 17,000 permanent residents and more than 1.8 million citizens who visit the Tahoe region annually. Our source of drinking water is exclusively groundwater and annual production is 2.4 billion gallons.

For more than 28 years, the District has prided itself in delivering the highest quality drinking water supplies while protecting what has become one of the world's most valuable ecosystems, Lake Tahoe. In 1997, our mission changed overnight from a water supplier and wastewater treatment operator to an organization trying to grapple with the problems created by MTBE contamination. Over the past several years, the District has been on the front lines of the MTBE battle.

I have been requested as part of this hearing to comment on provisions of H.R. 4, the energy bill, currently pending before Congress that address MTBE and the underground storage tank program. H.R. 4 as passed by the House contains section 504. Section 504 would authorize the U.S. EPA Administrator to use not more than \$200 million of the Leaking Underground Storage Trust fund revenues to respond to MTBE-related investigations and corrective action needs. Similarly, the Senate-passed version of H.R. 4 contains section 832, which would direct the use of the trust fund's revenues in a manner similar to the House version except that it appears the funding is phased over five years rather than being made available as necessary. We would encourage the House language be accepted during conference committee negotiations. The Committee and the House are to be commended for this action. It is a good start to ensure that future MTBE catastrophes are avoided or mitigated without delay. However, the costs associated with MTBE cleanups are tremendous and estimated to cost in the tens of billions of dollars. As I will note later in my statement, the LUST trust fund's resources must be used to their maximum utility. The point I want to emphasize with you is that the estimated cost to respond

to MTBE contaminated groundwater supplies ranges from \$29 to \$40 billion dollars. The provisions of H.R. 4 will only begin the process; we should not anticipate that these resources would adequately address our local communities' needs.

Our communities have experienced the closure of a substantial portion of our water supply because of MTBE contamination. This has created a serious potential for water shortages should we experience any serious drought conditions. So, as we consider the implications of MTBE contamination, I want to draw your attention to a few important points that we have encountered over the past several years.

First, MTBE contamination is a potential health issue. Once contamination occurs, the potential for health consequences of ingesting MTBE may exist for a long period because of MTBE's slow breakdown in the environment.

Second, MTBE contamination is a consumer confidence issue. The turpentine-like quality of the contamination makes drinking the water impossible, even at very low concentrations. The secondary MCL in California illustrates this fact. It was set at 5 parts per billion.

Third, MTBE contamination is a technological challenge. One of the bigger problems we have experienced is responding to the contamination. Quite simply, it is difficult and expensive to remove MTBE from a water supply. The contamination can remain in our water supplies for decades.

Fourth, MTBE contamination is an economic issue. For an area like Lake Tahoe, tourism is vital to our local economy's health. A water shortage created by MTBE contamination has devastating effects to the vibrancy of the local economy.

Fifth, MTBE contamination cleanup is an equity issue. The use of MTBE, we believe, was an ill advised if not pernicious decision that has potentially created tens of billions of dollars in cleanup needs across the country that could have been avoided. It is important that we do not ask innocent ratepayers to pay the cost of cleanup. This contamination occurred because of a blatant disregard for the known hazards of MTBE use.

Each of these points leads us to a conclusion that Congress must take decisive action to remedy the threats generated by MTBE use. Equally important, Congress must take action to ensure that we do not repeat the steps that led to MTBE contamination.

With these points in mind, I would like to turn attention to how the District and our ratepayers found ourselves in the position of becoming the first victim of MTBE contamination, the lessons we learned, and our recommendations on how we should proceed to address local communities' cleanup needs.

In 1997, the first of 8 wells were contaminated. As of today, 15 wells have been shutdown or suffered limited pumping to contain the contamination. This translates into over a third of our wells. As a result of this situation, in 1998 the District filed a lawsuit in San Francisco Superior Court against 31 defendants including refiner, distributor, and local retailers. These included Exxon, Shell, TOSCO, Atlantic Richfield, Lyondell (formerly ARCO Chemical), Chevron, BP, and Ultramar.

To date, the District has settled with twenty-six of the defendants for approximately \$34 million. This action was taken to recover the costs incurred to the water system as a result of MTBE contamination.

In 2002, the District learned that it had received a verdict in its case, finding the defendants guilty. At this stage, the case is proceeding with the penalty phase. Because of a court order that prohibits comment on any aspects of the pending litigation, I can only say that the District is hopeful that once the case is closed our ratepayers will be fully compensated for the tragic and avoidable circumstances we have had to deal with for the past several years.

In 1999, Governor Davis issued an Executive Order to phase out MTBE in California gasoline by December 2002, and to provide Lake Tahoe with special consideration to secure MTBE free gasoline without delay. (This has been extended for an additional year.) In addition, the District adopted a non-detection policy for MTBE in its drinking water. Because of the contamination, the District was also forced to enact a water shortage contingency plan. In 2000, El Dorado County followed with its own ordinance banning the use of MTBE.

The question that comes to mind is: How did this happen? The answer is not a simple one. The origin of the contamination was from 14 different gas stations' tanks. Second, our area's geography is a confined basin with a high groundwater aquifer and porous soils that were highly susceptible to the fast spreading MTBE.

From a different perspective, when the District sought assistance, the very state and local agencies that were charged with protecting public health and the environment were slow to react to the problem. So, as contamination continued to spread and authorities failed to react, we were forced to initiate actions in this vacuum.

We conducted a series of investigations to identify the problem. We organized a Potential Responsible Parties meeting to determine if we could work together to

solve the problem. Working closely with the Association of California Water Agencies (ACWA) we encouraged strong state and county enforcement of regulations. We imposed water conservation measures to anticipate the possibility of losing more wells. We sought federal and state assistance. And, we enacted a groundwater management plan ordinance that would provide the necessary teeth to protect our limited resource.

As a result of these activities, we discovered the nature, extent and impact of the problem for our community. Unfortunately, the costs of the response were dramatic. Estimates of the cleanup exceed \$45 million. To date, we have expended more than \$9 million for cleanup and modifications to the system. This is for a water purveyor with an annual budget of approximately \$11 million. The District was in no position to initiate the cleanup because of the cost, and because our ratepayers and we were not responsible for the problem.

When we turned for help, we found ourselves in a no-win situation. The responsible parties refused to lend a hand and the regulators informed us that there was no program or resources available to address this situation. Effectively we were told go away. The District was forced to initiate the lawsuit I mentioned earlier to address our needs.

The suit found the industry knew that MTBE would reach groundwater, pollute public water supplies, and threaten public health. As I mentioned, we are now in the penalty phase of that trial.

After years of struggling with a public health and environmental threat, we learned a number of lessons.

Once MTBE enters the environment, there is no easy solution to respond to the impaired water supply. The solution is expensive from a treatment point of view as well as local staff resources and finance perspectives. You need to respond without delay to reduce the movement, spread and dilution of the MTBE plume. And last, the current regulatory agency framework is unable to provide timely assistance.

Let me now turn attention to how we can avoid creating future MTBE-like situations.

First and foremost, avoid any effort to provide refiners and distributors of MTBE or other fuel additives liability protections. Our experiences demonstrate that the consequences of using MTBE were well known. The decision to proceed armed with this knowledge should never be rewarded with a get out of jail card. Simply stated local, state and federal governments should have the freedom to secure remedies from the responsible parties.

Second, the current regulatory program governing underground tanks fails to address the problems that have contributed to the MTBE crisis. We have had very good relations with U.S. EPA's Office of Underground Storage Tanks, but the resource base and authorities to respond to MTBE are stretched. The program should be reformed to provide meaningful assistance (financial and technical) support to communities that are grappling with this fast moving contaminant.

Third, the existing underground storage tank program needs a thorough top to bottom review. Clearly, the circumstances surrounding the contaminations origin in Lake Tahoe illustrates that there are cracks in the regulatory program that allow leaks such as those experienced by the District to endanger public health and the environment.

Fourth, spend the money. The current appropriation for the LUST program is \$77 million dollars. The trust fund has more than \$1.7 billion in receipts. If ever there was a time that we should use our resources it is now. I urge you to work with your colleagues on the Committee on Appropriations to leverage the trust fund to its maximum potential.

In closing, the District believes that with a mix of aggressive enforcement, federal cleanup assistance and an effective regulatory program that alerts communities to potential problems before they get out of control, we can avoid a repetition of the serious public health and environmental threats that the District has had to address.

Again, thank you for the opportunity to appear before you today. I look forward to responding to any questions you may have.

Mr. GILLMOR. Mr. Perkins.

#### STATEMENT OF CRAIG PERKINS

Mr. PERKINS. Thank you, Chairman. I would like to share with you today the key lessons we have learned from our painful experience in Santa Monica with underground fuel storage tanks and MTBE. Santa Monica is a city of nearly 90,000 permanent resi-



dents, and over 200,000 daily visitors. The city depends heavily on its groundwater for its drinking water supply. After many years of effort by 1995 we had become 70 percent water self-sufficient. This was an extraordinary accomplishment for southern California. By using our sustainable local water supplies we were therefore able to reduce our reliance on outside sources of water, increasingly scarce from northern California and the Colorado River.

This all changed in 1996 when Santa Monica was hit with our drinking water catastrophe caused by MTBE. Within a 6-month period in 1996, MTBE forced Santa Monica to shut down most of its water wells. These wells had accounted for one-half of the total daily water supply in Santa Monica, and we must now import over 80 percent of our drinking water, putting further strain on California's already fragile water supply system.

The effects of MTBE can be very devastating. As you have heard, it travels quickly and readily dissolves in water, and it has an uncanny ability to find its way into drinking water wells. Although gasoline has been around for decades and we have been producing oil since 1922, it was only relatively recently with MTBE that we ever found any gasoline contaminants. MTBE attacks swiftly. Once it is discovered, the levels in our wells rose very quickly, more quickly than any other contaminant that we had ever encountered. At the time our first well was shut down, the level had risen to 610 parts per billion, which is nearly 50 times the current State standard. As has been mentioned by Mr. Jones, MTBE strikes at the level of public confidence in the safety of drinking water supplies. People will not drink water that tastes or smells like turpentine, nor should they have to.

With hard work and perseverance, Santa Monica will eventually overcome our MTBE crisis, but the price will be steep. The projected cost to just clean up Santa Monica's main well field runs in the hundreds of millions of dollars. Current estimates for the total cost of nationwide MTBE cleanup exceed \$30 billion and counting. Clearly the costs of remediation for MTBE and other water contamination must ultimately be paid for by the polluter but, unfortunately, those companies responsible for causing the MTBE pollution in Santa Monica and other communities have not yet stepped forward to do the right thing. So until they do, the significant financial burden for MTBE cleanup rests unfairly on the backs of our water customers.

We need to make sure that we are doing everything that we can to keep underground storage tanks from leaking in the first place, even the newest underground storage tank systems leak and the leaks are often not in the tanks themselves, but in the piping that connects the tanks to the fuel dispensers. A primary focus needs to be placed on underground storage tank inspection and training and enforcement.

Too often in the past, operators of underground fuel tanks have been able to act irresponsibly because the threat of enforcement was remote or even non-existent. Let's make sure that the tools and resources are in place so the noncompliant tanks can't be used.

Most importantly, we need to stop using MTBE as quickly as possible. The longer we continue to widely distribute, store, and dispense it, the worst water contamination problem will become not

only in California, but in the rest of the country. And how can we concentrate our resources on cleaning up the problem when we have to respond to the plague of new tank releases causing MTBE contamination.

In conclusion, our two irrefutable facts that have emerged from our odyssey as the poster child for MTBE, if you will, are that underground storage tanks leak, a leak-proof tank is one of the greatest oxymorons of history, and it is extremely difficult to get polluters to pay for the cleanup once their pollution is identified. We must change our current policies with respect to MTBE and underground storage tank management if we hope to have a better chance of not repeating the mistakes of the past. I thank you very much for the privilege of testifying today.

[The prepared statement of Craig Perkins follows:]

PREPARED STATEMENT OF CRAIG PERKINS, DIRECTOR OF ENVIRONMENT AND PUBLIC WORKS, CITY OF SANTA MONICA, CALIFORNIA

On behalf of the Mayor and City Council of the City of Santa Monica I want to thank you for the opportunity to give testimony before this subcommittee. I am the Director of Environment and Public Works for Santa Monica and one of my major areas of responsibility is management of the City's drinking water production and distribution system. I would like to share with you today the key lessons we have learned from our painful experiences with underground fuel storage tanks and MtBE in Santa Monica. Santa Monica is a city of nearly 90,000 permanent residents and over 200,000 daily visitors. The City depends heavily on groundwater for its drinking water supply. After many years of effort, by 1995 we had been able to maximize the use of local groundwater supplies and achieve 70% water self-sufficiency. This was an extraordinary accomplishment in arid Southern California. By using our sustainable local water resources we were therefore able to reduce our reliance on increasingly scarce water imported from Northern California and the Colorado River. This all changed in 1996 when Santa Monica was hit with a drinking water catastrophe caused by MtBE. Within a six month period in 1996 MtBE forced Santa Monica to shut down most of its water wells. These wells had accounted for one-half of the total daily water supply in Santa Monica. We must now import more than 80 percent of our drinking water, putting further strain on California's already fragile water supply system. The effects of MtBE can be devastating:

- Once released from a tank or pipeline, MtBE travels quickly and readily dissolves in water unlike the other chemicals in gasoline;
- MtBE has an uncanny ability to find its way into drinking water wells. Although gasoline has been around for decades, it is only the relatively recent addition of MtBE that has caused widespread water contamination in Santa Monica and elsewhere;
- MtBE attacks swiftly. Once discovered, MtBE levels in the City's wells rose more quickly than any other water contaminant we had ever encountered. At the time that one of our first wells was shut down, the MtBE contamination had soared to 610 parts per billion, nearly fifty times the current state standard; and
- MtBE strikes at the heart of public confidence in the safety of drinking water supplies. People will not drink water that smells and tastes like turpentine, nor should they be expected to.

With hard work and perseverance, Santa Monica will eventually overcome this MtBE crisis, but the price will be steep. The projected cost to just clean up Santa Monica's main well field is well over several hundred million dollars. Current estimates for the total cost of nationwide MtBE clean-up are \$30 billion and counting. Clearly, the costs for remediation of MtBE and other water contamination must ultimately be paid for by the polluter. But, unfortunately, those companies responsible for causing the MtBE pollution in Santa Monica and many other communities have not yet stepped forward to do what's right. Until they do, the significant financial burden to start the MtBE clean-up process is placed unfairly on the backs of our water customers.

We need to make sure that we are doing everything that we can to keep underground storage tanks from leaking in the first place. Even the newest underground storage tank systems leak and the leaks are often not in the tanks themselves but

in the piping that connects the tanks to the fuel dispensers. A primary focus needs to be placed on underground storage tank inspection, training and enforcement. Too often in the past, operators of underground fuel tanks have been able to act irresponsibly because the threat of enforcement was remote or even nonexistent. Let's make sure that the tools and resources are in place so that non-compliant tanks are taken out of service and the public and environment are better protected.

Most importantly, we need to stop using MtBE as quickly as possible. The longer we continue to widely distribute, store and dispense MtBE the worse the water contamination problem will become not only in California but throughout the country. It is extremely difficult to concentrate our efforts and resources on cleaning up the widespread MtBE pollution that has already occurred while we continue to be plagued by new MtBE leaks.

In conclusion, the two irrefutable facts that have emerged from Santa Monica's odyssey as the "poster child" for MtBE water contamination are: 1) underground storage tanks leak; and 2) it is extremely difficult to get polluters to pay for the clean-up of their pollution. We must change our current policies with respect to MtBE and underground storage tank management if we hope to have a better chance of not repeating the mistakes of the past. Thank you for the privilege of testifying before the Subcommittee today.

Mr. GILLMOR. Thank you, Mr. Perkins.

Kind of a general question directed to Mr. Jones, and Mr. Perkins, we have heard conflicting testimony here, probably most of which is that MTBE, either there is no evidence it does have these horrible effects, at least it hasn't been established as a carcinogen, and we have had MTBE and gasoline since 1979 in California and the thrust of your testimony, I take it, this is something that we suddenly discovered that horrible polluters are causing to happen.

I mean, isn't it a fact that California, I mean, has done nothing to stop MTBE and these facts were known? It would seem to me at least, at the very least, the State of California is an aider and abettor, if not a polluter. So I mean, why are we trying to look for somebody behind the tree instead of accepting some responsibility yourselves?

Mr. PERKINS. Well, I will respond first. There certainly are a lot of suspects that can be rounded up in terms of the MTBE debacle. However, one thing I can tell you very clearly is that the responsible parties are not my customers in Santa Monica. We are the victims of bad decisions and gross negligence which was exercised by other parties. And so all I am saying—

Mr. GILLMOR. Basically governmental parties.

Mr. PERKINS. No, we are talking about private companies as well as governmental agencies that should have known better. And in fact did know better and chose not to act upon that knowledge. So I think what I am saying is that clearly the major part of the responsibility lies with the companies that manufacture, distribute it, and sold the MTBE gasoline as well as these watchdog agencies which really weren't watching very much at all.

Mr. JONES. Maybe just add to that yes it has been used since the late 1970's, early 1980's, but it was in much smaller levels, perhaps about 2 percent as an antiknock agent and not in very many of the gases. It wasn't used on the level that we are seeing now until the mid 1990's, I believe.

The State of California—the University of California did a very in-depth study, and they did find that there were some evidences that it could be a carcinogenic agent, and with that as well as a lot of other information that was provided in that report, Governor

Davis, in 1999, mandated the ban of MTBE by December of this year.

And because of the infrastructure for providing ethanol as a replacement not being in place, he had to put that off for another year. It is just not feasible to meet the deadline.

Mr. GILLMOR. So take another year of cancer. Okay.

Mr. JONES. That is one the things we are working on.

Mr. GILLMOR. Let me go to Ms. Ellis. As a State employee of the State's Underground Storage Tank Program, former member of the Blue Ribbon Panel, what experience, what recommendations do you think are important for us to know regarding reducing the instances of MTBE in groundwater?

Ms. ELLIS. I would like to comment a little bit about tank standards. The Federal Government has set certain minimums and the States must be as stringent or can be more stringent than those Federal regulations. Some States have chosen to double-wall their entire systems, some haven't. I also would do leak detection. Leak detection is kind of a tricky thing. There are certain allowable leak rates depending on the methods that is used. And one of the methods allows a tenth of a gallon per hour a leak rate. That is all the system has to be able to pick up. That is 1,700 gallons a year from a single allowable leak.

The State programs are kind of strapped. Right now we are shorthanded. We are down hydrologists. We are down inspectors. I remember that I think a figure in one of the Government Accounting Offices that our inspectors should be able to inspect 200 sites per year. I guarantee they would have a tough time doing a good job doing maybe 30 or 40 per year if you include all the paperwork and follow-up that goes along with that. They are out in the field for a few hours at a site. They are back in the office, you know, making phone calls, writing letters, dealing with the Attorney General's office for sometimes five or 10 times that. So, for us to do a more effective job to get the inspections done we need larger staffs.

As a hydrologist, I deal with a hundred different LUST projects, a hundred different sites, plus I do a lot of related things. Some States, the caseload is 2 or 300 projects per hydrologist. If you consider the number of working days in a year, there are, if I have got a few projects that are eating up my time where I am spending days and days on them, there are other projects that are going to get 10 minutes here and there.

So staffing for us is very important. Being very shorthanded right now I don't think we probably are allowed to hire anyone being in a freeze. We also need money. I know when I first started with the State 12 years ago, I don't remember what the figure was that we got in annual trust money, you know, part for staffing and part for annual cleanups. But over the years, I do know it has dwindled down so we are getting somewhere around \$10- or \$20,000 a year that we are actually able to go out and spend on cleanups when you consider staffing and the overhead and everything else for supervising the works. So definitely funding would help us.

We do have some additional State money that we haven't had in the past for orphan tanks that we haven't been able to address and

some other funding. We did get a LUST fields grant to deal with a LUST fields project. But if you look at the staffing in the States definitely money is an issue.

And State programs are quite variable in how they will fund cleanup. Some States have the money to move right in and take over. We are an RP-led State. Our RPs pay for the cleanups. There are very limited number of sites that are reimbursed by the State. Some States it is entirely State-funded through their funds. Some are insurance driven. So there is a wide variety of ways that cleanups are funded and, you know, money straight to a State may or may not do the entire job.

Mr. GILLMOR. Let me ask you, you mentioned that health risks due to MTBE water contamination are still being investigated. Could you give us some indication of who might be doing those studies and also how many water systems would you estimate are taking proactive steps to protect their citizens from drinking water problems?

Ms. ELLIS. Other than the testing that they are doing, I don't know how they really can be proactive. Some communities have different requirements. We require double-wall tank systems and well head protection areas and excellent recharge areas. We have a few areas that said no double—no single wall tanks anywhere. If you are going to be in a wellhead area, it has to be double-wall. There are different local regulations on it. But to be proactive, evidently they are sample now, our public health department is doing all of the systems for volatiles, at least on a one-shot basis, not just those few larger systems that we have.

Mr. GILLMOR. My time is running down, but let me ask you one more question. You referenced the incident in the Greenbush area of Hyde Park, New York, and some of the contamination referenced here has roots extending back before the beginning of the reformulated fuels program. In your experience, would you say that it is common to have contamination dating that far back?

Ms. ELLIS. I think it was very common to have contamination, it is just nobody was analyzing for it. I have collected some case histories as part of EPA's task effort and for a few other people, and I do have a few sites I can track back and find that I had contamination in the early 1980's in the groundwater. I did have, I think it was the 1989 public well that was impacted. It is just nobody was looking for it. We had a few people that were looking back then and mysteriously, MTBE dropped off their list and didn't come around again until we started requiring it.

So we can go back and pull old lab reports and they will look for a peak on a lab report, yes, that is where MTBE is. If we asked for—if they had asked for it, we would have told them it was there. But we are finding it way back when. And we require analysis for it on all the sites now. But in the past nobody did.

There are still States out there that are not requiring MTBE analyses at LUST sites. There are a heck of a lot of other States that are not looking for other oxygenates. And they are out there, I guarantee it. Because the States that are looking are finding DIPE and TAME and TBA.

Mr. GILLMOR. Mr. Pallone.

Mr. PALLONE. Thank you, Mr. Chairman. I am leaving it to my colleague from California to address the California comments that were made by the chairman. We will see.

I wanted to ask Dr. Williams because he was very—I am kind of upset by your testimony because you say that current levels of MTBE in California pose a negligible health risk toward consumers that national assessments by USGS indicated that MTBE levels do not appear to be increasing over time, and that intense efforts to regulate or decrease exposures to MTBE may be misguided.

I guess my concern is, I don't know why you think that the available evidence is sufficient to be so sure that MTBE contamination is actually decreasing. Won't it be some time before we know the full extent of the problem once we ban MTBE? And what comfort can local areas take from this sort of national perspective that I think you are giving to it? It seems like you are suggesting subjecting that the problem is one that we don't have to address. Even the EPA representative when he spoke before, although I thought he wasn't doing enough, certainly suggested that we need to do a lot more investigation and they may actually find that there are major health problems.

So why do you feel that the problem is negligible and perhaps doesn't even have to be addressed?

Ms. WILLIAMS. I would like to clarify that I haven't said—I do think that we should continue to do the research on this issue. However, the available data that is collected by California, this is, their drinking water quality monitoring data base does not show that there is widespread MTBE contamination. And as I have said, in fact, the detection frequency is low. It has not increased over time. As was just mentioned a moment ago, the MTBE has probably been there for many years, it is just that no one was sampling for it. It wasn't a crisis then, it doesn't appear to be a crisis now.

The crux of the comment that you are getting at that I mentioned is, it is important to put this in context. We are talking about broad public health exposures and risk in drinking water. If you really want to go after what is causing,—you know, what is causing the greatest risk from drinking water you have to expand your search beyond MTBE. We have just submitted a paper for publication in ES and T which we have looked at five other VOCs in California drinking water. The USGS has just put out some of their data where they—

Mr. PALLONE. We heard a lot of that in the previous panel. You are not suggesting that this is a problem that we don't need address, right?

Ms. WILLIAMS. I guess I am taking issue with the fact that calling it a "problem" if you look at it relative to other drinking water contaminants.

Mr. PALLONE. We have—Ms. Capps has talked about this \$2 million in the trust fund that is available right now. Would you support spending that money or any of that money now on testing and cleanups? Do you think we should be doing that?

Ms. WILLIAMS. I am not familiar with how this money is supposed to be spent.

Mr. PALLONE. We have the money available for this purpose if we want to use it.

Ms. WILLIAMS. I think we should continue the water quality monitoring data not only in California, but also in other States.

Mr. PALLONE. What about cleanup? You wouldn't support doing cleanups?

Ms. WILLIAMS. I guess it depends on the level.

Mr. PALLONE. Well, I guess I am just trying to get at—you seem to be subjecting that this is so negligible that maybe we don't even have to do anything. I think now you are saying that is not the case and I am misunderstanding.

Ms. WILLIAMS. What I am saying is there are a lot of contaminants in drinking water. We don't have zero levels of many contaminants in drinking water. So when you say do you want to clean MTBE, in my mind, I have to ask where we can get the biggest bang for our buck. Are there other contaminants that perhaps we might want to spend our resources on where we would get better public health benefits from reducing exposures to those.

Mr. PALLONE. Not necessarily that we shouldn't spend some money on testing and cleanup, it is just that you feel there may be other priorities.

Ms. WILLIAMS. Exactly.

Mr. PALLONE. Okay. Even if it doesn't turn out to be a health problem, doesn't the very presence of MTBE cause the water supplies to becoming undrinkable? And isn't that a major problem itself with both potential health and environmental consequences, just the fact that you can't drink it?

Ms. WILLIAMS. I am glad you asked that question actually. The U.S. EPA advisory level which is based on odor and taste effects of 20 to 40 parts per billion was based on a number of studies that have attempted to quantify at what level people can actually sense and taste MTBE. They found that that tended to encompass the range including folks that are particularly sensitive to taste and odor for MTBE.

So, yes, if you are finding detections in your drinking water above those levels that may cause concern based on esthetic reasons. However, in most cases, we are finding that the detections are far below that 20 to 40 standard.

Mr. PALLONE. So you are saying that at some point, it may be become undrinkable, but people are making too much of that because in a lot of cases it is drinkable.

Ms. WILLIAMS. I am saying that there is wide variability in people's ability to sense and taste and smell MTBE and that probably very few people are able to sense this at very low levels that we are currently finding in water based on the available taste and odor studies that are currently published and available.

Mr. PALLONE. Okay. I would ask maybe the other panelists similar questions, but let's move on. I don't want to monopolize. Thank you.

Mr. GILLMOR. The gentlelady from California.

Mrs. CAPPS. Thank you, Mr. Chairman. And I am aligning myself with our two representatives in the trenches. As a public health nurse, I am working right where the people are who consume our water supply. Although I am tempted to ask Ms. Ellis, you know, there are some States that don't even gather data on this.

Ms. ELLIS. There are still some that don't.

Mrs. CAPPS. I think we have tremendous work to do on all oxygenates and what we are trying to do to our water supply in order to have air to breathe. We really do need as much research as we can.

But I am going to ask Mr. Perkins and Mr. Jones, if you would help me explain to our chairman the plight of the California citizen, the water drinker, if you will. And correct me, I am going to lay out a very sketchy scenario. California, early on, was in the area that was designated polluting and mandated by EPA to do something about it in the form of oxygenates. Am I correct so far? So before many other States were even getting into this arena of adding things to gasoline to purify the air, we were out there partly on our own initiative as a State with the heavy pollution index, but also because of mandates by the Federal Government.

So it is the Federal Government who encouraged this, but we have where—you are the pioneers both in Santa Monica and South Lake Tahoe, for having been in this so long. So we have seen the downside to this whole scenario, both with the additive itself and the problems that may result from it, of oxygenates, in this case, MTBE, but also the leaks in the underground tanks.

MTBE is called the canary in the mine, right? It is so permeable. This is where I would like you to help pick up the story and explain why I was so frustrated when our colleague Mr. Bilbray a good Republican on our committee in the last session led the charge to see if we could get a waiver for the State since we had come up with levels of protected gasoline non polluting gasoline without even using oxygenates, yet we were denied by this Congress for seeking to protect our citizens.

Mr. PERKINS. I will start. Our city council strongly supported a Federal oxygen waiver for California. We were very disappointed at the decision that was made and what essentially has been the result is MTBE will continue to be used throughout California for at least an additional year. There will be subsequent releases from those tanks and fuel systems and it will cause further water contamination. So it is a bad situation and we think that the right decision would have been the waiver.

Mrs. CAPPS. Thank you. We are being held hostage by so-called environmental protections when we can provide gasoline that is every bit as non invasive of the air quality. At the same time we can't get our hands on enough of the LUST fund to do something about the problem.

Mr. JONES. I totally agree with you and just ditto the comments from Mr. Perkins. Luckily in our county, our county supervisors passed an ordinance which banned the sale of MTBE gasoline in the Lake Tahoe basin. So unless we have an automobile accident and a car rolls over like we know of instances where it has, we shouldn't have any more pollution. But this is something that our community is going to have to live with for certainly decades. We have done quite extensive studies. We had to do it because we were going to court over this issue. And we have done some very extensive hydro geological studies that show how the plumes will move and how they will be there for many years. And we know what the treatment costs may be because they are changing.



We are coming up with some new technologies, or at least refining some of the existing technologies that have been used in other areas for water quality treatment to specifically treat MTBE. But we are talking about talking about \$45 million to clean up the problem that we have and we have already expended, our district has already expended about \$9 million, and this is for a water district whose annual budget is only around \$10 or \$11 million a year. So that is a major cost to us.

Mrs. CAPPS. It seems unconscionable to me that we are shifting the burden of responsibility to consumers and to their local elected officials when we are the body that, in the first place, mandated the use of oxygenates. And are turning our back on the very people who took them seriously, even before it was mandated in many instances and now need some assistance and have the right to come and ask for our help. I strongly suggest to our Chair that we move forward with good legislation to address the situation at the earliest possible date.

Mr. GILLMOR. The gentlelady's time has expired, but we will proceed with another round, so you have another opportunity. Let me ask Ms. Williams. Oh, you know what, it is very difficult to overlook Texas. And I apologize.

Mr. GREEN. In fact, I don't mind being beat but I never want to be overlooked. Thank you, Mr. Chairman. I appreciate—I will stay around for a second round too.

Dr. Williams, the gentleman just mentioned that Lake Tahoe was going to be cleaning their groundwater for decades. Could you comment to that in your experience, and is that really going to be a problem, the cleanup of groundwater for decades?

Ms. WILLIAMS. Remediation is not my area, but certainly MTBE if it is not being remediated, is persistent and may be there for a couple of years. I don't know what the conditions are of their aquifer.

Mr. GREEN. Okay. Let me ask Mr. Jones. Ms. Ellis said that wells, at least in her testimony—and I will ask some questions of her in a minute—said wells were impacted by lake contamination. Is that true of Lake Tahoe that the groundwater that people pump out of the wells is impacted by Lake Tahoe? You said you had high water tables.

Mr. JONES. Hydrologically there may be some impact by the gradient from the mountains toward the lake for the most part. And the plumes are being moved by that gradients and it is being moved through some of our areas that we have wells in.

Mr. GREEN. Okay. When were two-cycle engines banned on Lake Tahoe?

Mr. JONES. It has been staged over the last about 4 years. The jet skis were banned about 3 or 4 years ago. I am not sure of the exact dates. I know I have a small sailboat with an auxiliary engine which wasn't required to be taken off until this season. I only use about a gallon a year just getting out of the marina.

So those types of engines were exempted because of the small use. But most of the pollution is coming from underground storage tanks. We have seen a significant reduction in the lake itself of MTBE after the bans of both the sale of MTBE within the basin and the elimination of the two-stroke engines.

Mr. GREEN. The two-stroke engine, I understand, was banned and we have had a number of hearings in our committee over the last 6 years, and actually one before the two-cycle ban and would you say the ban on two cycle engines on Lake Tahoe contributed to the cleaning up of MTBE and whatever else may have been leaking out of that, whether they you know, out of the tanks of the jet skis or your sailboat or anywhere else?

Mr. JONES. Only in the lake itself and not in the groundwater aquifer, which is—

Mr. GREEN. And the groundwater aquifer you said was from the leaky storage tanks. What is the enforcement in the basin, and is it your responsibility or is it someone else's responsibility for those leaky storage tanks in the basin? Is it the State's?

Mr. JONES. It was the State's authority. Because we felt that they were slow in responding, we set about in State law in California that allowed districts to set up a groundwater management plan. We have done that. We will be—the idea of our program is to put in some more monitoring wells at gas stations and make these monitoring wells large enough so if we do detect any leaks that we can immediately respond and put in pumps that can start pumping and treating immediately.

And let me say a couple more things about some of the data that is available. And I know you say the average is a 1 part per billion. We have a lot of wells and the data that Dr. Williams—

Mr. GREEN. I only have 5 minutes and you had plenty of time for your testimony, though. When you were testing, did you test anything other than for MTBE?

Mr. JONES. Oh, yes.

Mr. GREEN. Did you test for any benzene? Was there—did you find benzene along with MTBE?

Mr. JONES. We do find all of those things. But what we were finding was that the MTBE plume is spreading so much faster because it is so much more soluble. It is spreading a lot faster than the BTEX components are spreading. Those tend to spread a small distance and then dilute and break down. The MTBE travels with the speed of the groundwater.

Mr. GREEN. You mentioned that the problem in Lake Tahoe started about 1995 when they started to use a great deal of reformulated gasoline, and MTBE use was the product of that, not ethanol. Ms. Ellis talked about that she has evidence of the 1980's, there was problems with MTBE. And I guess, you know, there wasn't a reformulated requirement until 1990. Was there anything that you can trace back in the Tahoe basin that was to the 1980's for MTBE?

Mr. JONES. We did not know anything about MTBE until I went to a meeting where Mr. Perkins spoke and was talking about the problem that they were having in Santa Monica. I went backed back and talked to our water manager and asked him about MTBE and he just had this glossy look and like what are you talking about. We started then testing and we started then finding it. This would have been in 1997.

Mr. GREEN. Did you start testing in 1997, but did you test before that for any of the known carcinogens? I know your testimony was the MTBE may be a carcinogen.

Mr. JONES. We test for all of the things that are required by the State Department of Health and the benzines and some of these other things are required.

Mr. GREEN. Benzine, toluene, xylene.

Mr. JONES. I am not sure about all of those, but I know we are testing for the things that are required by the California Department of Health Services.

Mr. GREEN. Thank you, Mr. Chairman.

Mr. GILLMOR. I am looking closely to be sure I didn't overlook anybody else. Let me go to Ms. Williams. Are you aware of any, or Dr. Williams, any test samples or studies reports that would evaluate the effects from the ingestion of MTBE and if you are where—do you have who authored them and what the findings were?

Ms. WILLIAMS. Are you talking about toxicity studies?

Mr. GILLMOR. Yes, I think.

Ms. WILLIAMS. Currently I am aware of only studies that have looked at animals that have been injected straight into the—oral gavage studies. As far as I know, there have been no oral drinking water chronic studies conducted to date. Although I think the EPA may be considering conducting such studies.

Mr. GILLMOR. Thank you. Let me go to Mr. Jones. In your testimony, you mentioned responding to remediation of MTBE contamination has presented a complex set of challenges. I guess what my question is what are the common technologies that you use for cleanup and what would be the general time line that you had been looking at for completion of a cleanup at an MTBE site?

Mr. JONES. First of all, we are not looking at cleaning up an MTBE plume as such. We feel responsible parties should be doing that. We need to go ahead and provide water to our customers now so we don't have time to do that. What we are doing is to solve our problem is, in some places, we are going to develop some new wells and in other place where is we have lower concentrations of MTBE in the water we are use some of the existing technology that has been modified to treat with the MTBE.

That can be aeration, it can be activated carbon. It could be advanced oxidation process. And there are several others that are out there that are being tested at this point. But we think the advanced oxidation process and the activated carbon are probably best for our district in the concentrations that we are looking at and the wells we want to be able to treat at the wellhead.

Mr. GILLMOR. You talked about the fact of delay in treating MTBE contamination is increasing the cost. Can you quantify that in any way as to what your—how much delay increases cost by what factor or some kind of—

Mr. JONES. I know what you are asking. I am not sure I can really answer that. What happens in the delaying, the going in and treating immediately is that it allows the plume to spread and dilute. If it dilutes enough, that may have solved part of the problem. But as it spreads, you just have a much larger aquifer that becomes contaminated, and therefore, you have more wells that could, you know, be knocked out of operation.

Mr. GILLMOR. Would you take a crack at that, Ms. Ellis.

Ms. ELLIS. There are differences in technology. I clean up primarily LUST sites. We may be dealing with a much smaller vol-

ume of water at a much higher concentration. We have sites where we have hundreds of parts per million of MTBE and the technologies are different than treating very large volumes of water in a public system with very low quantities. If we can catch them quickly, they are treatable, particularly in our down State areas, very sandy aquifer. If we have a small plume, if I can pump it out of the ground, I can remediate a site.

Now, removing the MTBE from the water once it is pumped out of the ground can be extremely costly, and part of it is based on the fact we are very stringent on our air emissions for treatment systems. In other parts of the State, there is almost no way to pump groundwater out of the ground. You may get half a gallon a minute yield, or something from a well and it is going to be very difficult to clean up the MTBE on those sites. And the treatment costs are extremely dependent on how long it has gone.

If we have got a 2,000-foot long plume, there is no way I can pump enough groundwater out of there to treat that site. We will kind of write off the wells. We will do replacement wells or try and bring in public water from somewhere else. What we will address on those sites is try and hit the source area and knock the high contaminant levels down in the source area, so this thing won't continue to grow for years and years. But if I pump groundwater out of a long plume, I haven't place to put it, and I can't afford to treat it. But the costs are extremely variable. We have a number of million dollar cleanups going right now, I guarantee they can't afford to do them.

Mr. GILLMOR. The gentleman from New Jersey.

Mr. PALLONE. Thank you, Mr. Chairman. I just wanted to go back basically to some of the things I asked Dr. Williams and see if the other panelists wanted to comment on it. If I could ask the panelists to comment, we have almost \$2 billion in the trust fund now. Do you support spending all or part of that money on testing and cleanups? Are you—not that you are looking to attack Dr. Williams here, but if you would maybe like to comment in that context about some of the things she said. Because it does—I am concerned that she is saying, you know, we don't have much of a problem, even though she said we do have a problem.

Mr. JONES. We support the \$200 million. It is a good step. Our cleanup cost was about \$45 million. Santa Monica's is on the order of \$200 million; \$200 million in your bill is not going to go very far.

The costs, the study that was done by Comex, a consulting firm, had a range—and there a lot of variables—but had a range between \$29 billion and \$90 billion to clean up what is existing. I believe there is a typo in my paper that says \$40 billion. It should be \$90 billion. Those costs we think should be borne by the responsible party. That is why we have sued the 31 defendants that we did sue.

As far as your question on the data that is available and what was used by Dr. Williams, she was using what was available. The system that the California Department of Health Services has set up does not have all of the data. In many cases it is misleading. I have looked at the data which our district has or has been put into the system. On many wells we are showing zero, and that is just for our production wells. We have monitoring wells that are

around the zone of influence of those wells, and in some of those we have very high concentrations of MTBE, sometimes at 100 or 1,000, and in some cases over 10,000 parts per billion. We have shut those wells off so we do not pull the rest of that plume into that zone of influence and totally destroy the well, hoping that someday we may clean up the existing plume and start those wells again. So that a lot of that data does not show up in the Department of Health Services' data base.

Mr. PALLONE. Mr. Perkins.

Mr. PERKINS. I guess it does not make me or my customers feel any better to hear that we are just really unlucky that we found so many places in Santa Monica. I think that the data is very misleading, that MTBE is not only very prevalent now, but it is going to be more prevalent as a drinking water well contaminant.

Just to respond to the issue of money and time for cleanup, we are looking at hundreds of millions of dollars. Our estimate in terms of the time that it is going to take to get to a treatment facility that is operating is around 5 years from today, and we estimate that that treatment facility will need to operate from between 10 to 30 years, depending on how optimistic you want to be about the level of contamination that we are going to find.

It does not do any of us any good to talk about averages of less than 1 part per billion and not so many communities have been impacted. More communities are impacted each year, and it is something that has to be addressed now, when we can prevent it earlier in the process, than if we ignore it and try to deal with it later on.

Mr. JONES. I think that that money could be used for increasing the inspection rate. If the inspector is going to get out there once in 3 years, that means 1 day out of 1,000 you are not leaking. We are finding a lot of them have not even been inspected up to this point. Some of that money could be used for training or certification of the operators and owners. Right now there is no certification program. We require our barbers to get some sort of certification, but we do not require the operators of gas stations that are operating highly technical operations as well as volatile fluid and something that can pollute the groundwater. I think that some sort of certification program would be very helpful.

Mr. PALLONE. Ms. Ellis?

Ms. ELLIS. I will comment on the health studies. The World Health Organization and the California Board, the Center for Disease Control, these people that decide whether some things are carcinogens or not, are basically saying there is not enough evidence to prove it is a carcinogen. There has been a limited number of studies. They are short term, high dose, usually inhalation, rats and mice, and we are supposed to translate what that means to humans. Most boards which vote have been within a vote one way or the other. It has not been flat-out no, this stuff is not going to hurt you. It has been 5-to-4 and 3-to-7. All of those boards have been pretty close, and mostly they are stating there is not enough evidence, we need more evidence to decide one way or the other.

With regards to California not having a very high number of well impacts, their geology is different and they rely primarily on deeper aquifers. In Delaware, we do not have a whole lot of really deep

wells; 200 or 300 feet is deep in Delaware. We have shown we can impact a 200-foot well.

Most of our community systems are serving the day care centers and schools downstate, it is rare to get more than 75 feet deep, and some are 50. And Murphy's law will always put those guys directly down gradient of a gas station. They will not be up gradient where they are a little bit safer. We may have Santa Monicas and Lake Tahoes, but in Delaware we have Lincoln and Campton, we have little towns that—and it is just as important to those few hundred people in a town that their water supply has hundreds of parts per billion MTBE; and in one case we had a domestic well with 25 parts per billion.

They may not be 50 percent of the wells being impacted, but it is their well or their well system or their domestic wells. Whenever we go to a public meeting with our people, an impacted party, we try to get out there right away to explain the process and what the State is going to be doing and what the timetable is. You have to picture yourself sitting on the other side of that desk, sit yourself in the audience and see what you would feel like if you were told, we do not know what it means about health. Yes, it smells and tastes bad; it may take a year to do an investigation. If you were sitting out there, you would not want to hear that.

Mr. PALLONE. Thank you, Mr. Chairman.

Mr. GILLMOR. The gentlewoman from California.

Mrs. CAPPS. Thank you, Mr. Chairman. That hit hard to me, Ms. Ellis.

I am going to turn our attention to the California representatives. The groundwater pollution that is in my district are in little communities, over 100 in Santa Barbara County, but the beautiful village of Cambria has to use their secondary water system now. And they are in a high fire district. If they have a forest fire, they do not know what they will do. I have had to ask for some funding for desalination for them.

It seems very tragic to me that we are putting our citizens in such a vulnerable position. I am going to go back to the two people from California and start with Mr. Perkins. What should we be doing here? Particularly with the idea that there is a fund established and that every time someone fills up their car at a gas station, they set aside a little money for this LUST fund, and we have a huge amount of that, \$2 billion plus in a reserve, what would you like to see that money used for?

Mr. PERKINS. It is there to deal with urgent situations. If this is not an urgent situation, I don't know what is. It needs to be spent and not kept sitting unused and unproductive, money both for direct cleanup, investigation and cleanup as well as training enforcement, all of those issues related to underground storage tank management.

The other thing that I think needs to be done is grant the oxygenate waiver just to remove MTBE from the stream of commerce as a precaution, which has proven to be a reasonable precaution based on what has happened.

Finally, if ethanol is mandated to be used, no waivers, no immunities for ethanol. If it is a safe product, then the people that make

it and sell it should be willing to be responsible for its safety. That is the three elements that I would point to.

Mrs. CAPPS. Thank you.

Mr. JONES. I agree, so I will not discuss those things. I agree with what Mr. Perkins has said. I talked earlier about some program for training owners and operators and maybe some sort of certification program. Increased inspection is important and we need to train those inspectors better.

Another thing is that we need to look at the design of gas stations, and have a paradigm shift on the design of gas stations. Right now we are putting the tanks over here and the dispensers here. If we do something like what they do in Europe, there are countries there that require the dispensers to be directly over the tanks, and those are contained. And in some countries, they have very little leakage of MTBE or gasoline into their systems.

There are people that have done that here in the United States, I know Sunoco has done that, and there are some others that have been built around the country and they do not have the leaks. It is not so much in the tanks. Everybody says it is the tanks that are leaking. No, it is more in the plumbing. When you have hundreds of feet of plumbing between tanks and the dispensers, that is where you are going to get a lot of leaks.

In California with earthquakes, shifting can cause leaks. Also, we have a lot of stupid human error, mistakes that were done by people, such as disconnecting systems, driving away from dispensers. That is going back to the certification and training so people understand what is happening. Education would be a big help.

Mrs. CAPPS. Just a quick question. There is a very strong pro-ethanol group here, both on our committee and in Congress. I have no quibble about ethanol, but it is a huge issue for us in California where it would have to be imported, I understand. So the Governor has extended the time to have to come to terms with this.

Mr. Perkins, did you say something about ethanol? What do we need to make certain if that is what we are faced with?

Mr. PERKINS. There has been a lot of talk about creating a safe harbor, an immunity from liability for the manufacturers of ethanol. I think that is a big mistake. One thing that MTBE teaches us is the law of unintended consequences, particularly as it pertains to field additives. If it is safe, let us make sure that there is no immunity from liability. Or if there is information that is not being divulged now about ethanol, that may call that into question.

Mrs. CAPPS. Am I right in supposing that methods of removing harmful products of gasoline have been developed that are not oxygenates that would not fall into any of these categories? This is not your field either, I understand.

Mr. PERKINS. There is a lot of very legitimate questioning of the benefits from oxygenate at all in gasoline and what truly does it result in, improved air quality. That aside, there are some refiners that claim that they will be able to create a gasoline formula that has the same air quality profile as oxygenated fuel without using the oxygenates. I am not sure whether they have been able to make that commercially available or how long it would take to do that.

Mr. JONES. I have heard from the experts that they can make a gasoline with no backsliding on air quality. In California we do not have the infrastructure for production of ethanol. We can do it in a few years, but to put us in a position where that is going to have to come from the Midwest at greatly increased cost, there is a big question whether we have enough tank cars or barges to get the material to California.

I think it can be phased in over a period of time if we find that ethanol is not an environmental problem. The University of California study, one of their last conclusions in that report was let us not jump in and put in another oxygenate to replace MTBE without thoroughly studying it. And I don't think it has been thoroughly studied. When people say all you have to do is put an olive in it and a couple of ice cubes, I would ask them if they would really drink denatured alcohol. The reason it is denatured is to keep people from drinking industrial-grade alcohol.

Mr. GILLMOR. We will close with the never-to-be-overlooked man from Texas.

Mr. GREEN. Mr. Chairman, this last panel has been so interesting. I have heard a lot of analogies about science and causing cancer. I would hope that our committee would go to the CDC on the various health issues and not just depend on analogy testimony. I do support use of sound science to determine whether something is harmful to the public health.

I will mention, as I did earlier, we are talking about banning MTBE, but you are not going to ban benzene or any of the other things that make the cars in California run. But because you can smell and taste it, and it is not a known carcinogen, you want to ban it. It makes no sense.

The first panel, EPA and the GAO, in their statements and under questioning, talked about it is not a known carcinogen. We have had hearings in this committee for at least 4 years, so maybe more studies are needed. And why haven't they been done in the last 4 years by the States of Delaware or California? It could bring us actual scientific testimony instead of saying I know it is a one-vote majority vote, whatever it is. That is not substantive enough to say what we would do with banning MTBE, and the high cost to the California resident, and every resident; at least 5 percent of the gasoline is MTBE, maybe as high as 30 percent according to the first panel.

You can ban MTBE, but we have to replace it, and it may cost 50 percent to 100 percent more per gallon. I hope to fix the leaky storage tank problem.

Mr. Perkins, you talk about a strong argument for local standards. And it seems California, because of the earthquakes, and Ms. Ellis said Delaware has developed and established local standards for underground storage tanks; has that been discussed in California?

Mr. PERKINS. Yes, it is discussed a lot. We are responsible for the management and enforcement of storage tank standards within our city limits. We have actually required double systems not only for the tanks, but also for the piping, a containment system for the piping. That is for a number of years, and I think we are the only



community in California doing that, and we have tried to encourage the State to look at that.

However, our problem is a number of our water wells that were impacted are outside of our city limits, actually in the city of Los Angeles, and so we were subject to just the routine standards which were, quite frankly, not very well enforced. That is where our problems are occurring.

Mr. GREEN. I understand we have the Governor banning it and yet not enforcing some of the standards.

Ms. ELLIS. I have an April 12 issue of the World Fuels Today that the USGS survey completed last August in Delaware, found that the contamination rate is on the average of less than a half part per billion. I know you have some examples that you shared of individual communities. And I was wondering if—and, again, there may be a particular problem in other communities—but is that report from the World Fuels Today pretty accurate? I think you annotated it in your testimony.

Ms. ELLIS. They did detect MTBE in 17 of the 30 wells at local levels. There were a number in the 1 to 10 parts per billion range; and in that study, there was 1 over the 10 parts per billion.

Mr. GREEN. Should all chemicals showing up in concentrations of less than a half part per billion be banned or phased out?

Ms. ELLIS. No, not in my opinion. One thing that is very difficult to look at is cumulative risk. If you have a half part per billion of this, and 5 parts per billion of this, and 2 of that, and they are all under the maximum contaminant levels, if there is a level that has been established, you have to add those together somehow, and that may trigger your cancer risk so it is over the acceptable level.

Mr. GREEN. Wait a minute. You are a hydrologist and not a scientist.

Ms. ELLIS. I think a hydrologist is a scientist.

Mr. GREEN. But to give us testimony on cancer, and I would love to have it, I want somebody who is a scientist from the CDC giving that kind of testimony. Again, it is anecdotal and it is interesting; but I would rather have maybe less than 5 parts per billion of MTBE than 1 part per billion of benzene. That is again the relationship.

Mr. Chairman, I would like to submit this copy of the World Fuels Today from April 12, 2002, that talks about the Delaware public water wells in its entirety for the record.

Mr. GILLMOR. Without objection.

[The information referred to follows:]

#### WORLD FUELS TODAY

APRIL 12, 2002

#### *Regulatory Activity:*

A recent survey of 30 randomly-sampled Delaware public water wells revealed that all of the wells had at least one VOC detection and MTBE was among the three most frequently detected compounds, although its levels were relatively low. The survey, conducted by the U.S. Geological Survey (USGS) between August and November 2000, found MTBE in 17 of the 30 sampled wells, *with median levels of 0.2 parts per billion (ppb). None of the MTBE samples were above EPA's non-enforceable Consumer Acceptability Advisory for odor and taste of 20-40 ppb*, the Delaware Department of Natural Resources and Environmental Control (DNREC) pointed out, although the report shows that the state's water resources are vulnerable to contamination. "The USGS report shows the need to continue our groundwater protec-

tion efforts for a resource that is clearly vulnerable," said John Barndt, program manager in the Water Supply Section, Division of Water Resources. *"The good news is that the levels of chemicals that have been found are extremely low, which indicates that efforts at using best management practices will work. The USGS will be doing further assessment work with this data, which will help the state DNREC refine our protection efforts,"* he added. *Specifically on MTBE contamination, Barndt said the agency "wasn't concerned about any specific wells, but was concerned that MTBE was present in so many wells." But don't look for the state to introduce an MTBE ban any time in the near future.* Delaware would like to see MTBE out of its gasoline, but the state is concerned about the legality of trying to remove the chemical, according to Patricia Ellis with DNREC's underground storage tank division. Ellis, who sat on EPA's Blue Ribbon Panel on MTBE, said the state is looking to the U.S. Congress for a solution to the issue, to allow the state out of the 2% oxygenate standard. The state opted into the RFG program and is therefore required to meet the 2% standard. *Chloroform and tetrachloroethylene were the other two most frequent VOC detections in the study.* This study is part of two larger projects: the USGS's National Water Quality Assessment project for the Delmarva Peninsula and Delaware's Source Water Assessment and Protection Program. To obtain a copy of the study, call USGS at (302) 734-2506.

Mr. GREEN. I yield back.

Mr. GILLMOR. The gentleman yields back and that concludes our hearing.

I would ask the witnesses if they would be willing to submit to questions in writing after the hearing if members have some further questions, which I expect they may have. I want to thank you once again for coming. It has been a long day, and you have been not only informative but very patient and we appreciate it.

[Whereupon, at 8:12 p.m., the subcommittee was adjourned.]

